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PCComputing

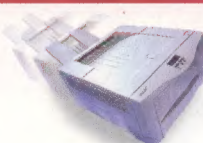
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MARCH 1999

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With the Millennia C400 just ranked PC Magazine's Editors' Choice (Feb '99), and the Millennia 450 ranked the #1 450MHz desktop by the editors of CNET and the #1 Power Desktop by the editors of PC World (Millennia 400 DVD • Oct '98, Millennia MAX 450 • Nov '98, Millennia MAX 400 • Dec '98), Micron's Millennia desktop product line continues a long tradition of industry-leading, award-winning performance. Perhaps that's why some of the most prominent power users around rely on Micron. But Micron offers far more than outstanding systems. We provide the new tools necessary to win in today's demanding new economy, the latest of which is called Micron University and it's free^s with the purchase of any new Micron portable or desktop system.

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Model Name	Millennia [®] C400	Millennia 450	Millennia MAX 400	Millennia MAX 450
Processor	Intel [®] Celeron [™] processor 400MHz	Intel Pentium [®] II processor 450MHz	Intel Pentium II processor 400MHz	Intel Pentium II processor 450MHz
Cache	128KB internal L2 cache	512KB internal L2 cache	512KB internal L2 cache	512KB internal L2 cache
RAM	64MB SDRAM	64MB 100MHz SDRAM	128MB 100MHz SDRAM	128MB 100MHz SDRAM
Hard Drive	8.4GB Ultra ATA hard drive*	8.4GB Ultra ATA hard drive*	13GB Ultra ATA hard drive*	13GB Ultra ATA hard drive*
Monitor	17" Micron 700Vx monitor (15.9" display)	17" Micron 700Vx monitor (15.9" display)	17" Micron 700Vx monitor (15.9" display)	17" Micron 700Vx monitor (15.9" display)
DVD/CD-ROM	40X max speed CD-ROM drive	40X max speed CD-ROM drive	6X DVD-ROM drive (free upgrade from 4.8X DVD-ROM drive)	6X DVD-ROM drive (free upgrade from 4.8X DVD-ROM drive)
Modem	3Com US Robotics V.90 WinModem**	3Com US Robotics V.90 WinModem**	3Com US Robotics V.90 WinModem**	3Com US Robotics V.90 WinModem**
Graphics	nVidia Riva 128, 8MB SGRAM 3D 2X AGP graphics	nVidia Riva 128, 8MB SGRAM 3D 2X AGP graphics	16MB Diamond Viper 550 Tnt 2X AGP graphics	16MB Diamond Viper 550 Tnt 2X AGP graphics
Sound System	PCI 128-voice WaveTable sound Advent AV009 speakers	PCI 128-voice WaveTable sound Advent AV009 speakers	PCI 128-voice WaveTable sound Advent AV009 speakers	PCI 128-voice WaveTable sound Advent AV009 speakers
Warranty	5-year/3-year Micron Power limited warranty	5-year/3-year Micron Power limited warranty	5-year/3-year Micron Power limited warranty	5-year/3-year Micron Power limited warranty
Additional Storage	3.5" floppy drive	3.5" floppy drive	3.5" floppy drive	3.5" floppy drive
Training	1-year free* training at Micron U online	1-year free* training at Micron U online	1-year free* training at Micron U online	1-year free* training at Micron U online
Factory Direct Price	\$1,299 \$46/mo. Business, Lease 36 mos.**	\$1,699 \$59/mo. Business, Lease 36 mos.**	\$1,799 \$63/mo. Business, Lease 36 mos.**	\$1,999 \$70/mo. Business, Lease 36 mos.**
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PCWorld, "Best Buy," April '98"
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TREK² 366

Model Name	TREK ² 266	TREK ² 300	TREK ² 333 New!	TREK ² 366
Processor	Intel Pentium II processor 266MHz	Intel Pentium II processor 300MHz	Intel Pentium II processor 333MHz	Intel Pentium II processor 366MHz
Cache	512KB L2 pipeline burst cache	512KB L2 pipeline burst cache	256KB L1 on die cache	256KB L1 on die cache
RAM	32MB SDRAM	32MB SDRAM	64MB SDRAM	64MB SDRAM
Hard Drive	3.2GB hard disk drive (removable)*	4GB hard disk drive (removable)*	4GB hard disk drive (removable)*	4GB hard disk drive (removable)*
Monitor	12.1" SVGA TFT display	13.3" XGA TFT display	14.1" XGA TFT display	14.1" XGA TFT display
CD-ROM	24X CD-ROM drive (dedicated bay)	24X CD-ROM (dedicated bay)	24X CD-ROM drive (dedicated bay)	24X CD-ROM drive (dedicated bay)
Graphics	4MB AGP graphics accelerator	4MB AGP graphics accelerator	4MB AGP graphics accelerator	4MB AGP graphics accelerator
Sound System	Built-in stereo speakers & microphone	Built-in stereo speakers & microphone	Built-in stereo speakers & microphone	Built-in stereo speakers & microphone
Warranty	5-year/1-year Micron limited warranty	5-year/1-year Micron limited warranty	5-year/1-year Micron limited warranty	5-year/1-year Micron limited warranty
Operating System	Microsoft [®] Windows [®] 98	Microsoft Windows 98	Microsoft Windows 98	Microsoft Windows 98
Training	1-year free* training at Micron U online	1-year free* training at Micron U online	1-year free* training at Micron U online	1-year free* training at Micron U online
Factory Direct Price	\$1,699 \$59/mo. Business, Lease 36 mos.**	\$1,999 \$70/mo. Business, Lease 36 mos.**	\$2,499 \$88/mo. Business, Lease 36 mos.**	\$2,699 \$94/mo. Business, Lease 36 mos.**
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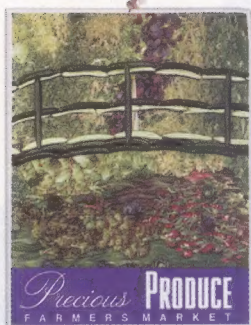
A highly detailed vegetable artwork. The top half features a woven basket made of dark, thick vegetable stems, filled with light green cucumbers. Below the basket, a river flows, composed of various leafy greens and red flowers. The bottom half of the image is a dense arrangement of these vegetables, including purple cabbages, red flowers, and green leafy plants. The overall composition is a testament to the artistic skill of creating a realistic scene from natural ingredients.

AT 720 DPI,
YOU SEE
IT'S CREATED
BY AN
ARTIST.

AT 1440 DPI,
YOU SEE
IT'S CREATED
OUT OF
VEGETABLES.

YOU'VE GOT TO SEE IT IN

EPSON COLOR.



Our 1440 dpi clearly lets you see this incredible poster came from a garden – not a painter. It's created entirely out of vegetables. And the farmer's market that sells them was as particular selecting the right printer as they were in choosing their produce. They picked an EPSON Stylus® Color printer with 1440 dpi because to them, detail was very important. Sure, other printers might show heads of lettuce. But they wanted to see every leaf of Radicchio, Bibb and Boston. And so would their customers.

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home and office.



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for business.

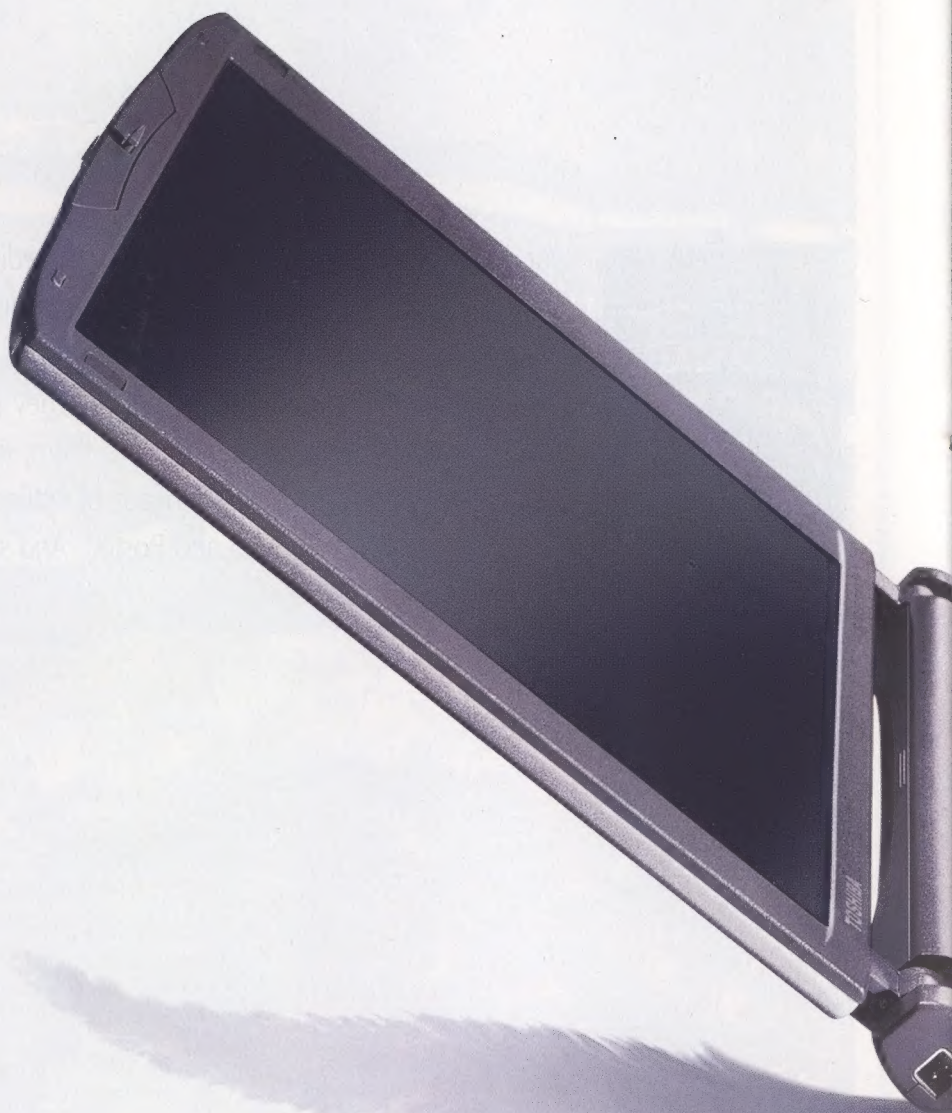


The National Software Testing Laboratory, Inc. (NSTL) found that when printing a color photo on coated paper in 720 fine mode, the EPSON Stylus Color 640 and 740 print up to twice as fast as other printers. The NSTL report is available by calling 1-800-GO-EPSON. NSTL testing uses typical software applications and conditions. Actual results may vary according to applications, print settings and computer configuration. Prices may vary. Epson and EPSON Stylus are registered trademarks of Seiko Epson Corp. PerfectPicture and Micro Piezo are trademarks of Epson America, Inc. ©1999 Epson America, Inc.

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Ultimate Internet systems, wafer-thin Windows 2000 notebooks—we've got just what you need for home, office, and the road. Plus: the best modems, cameras, monitors, and printers. **134**

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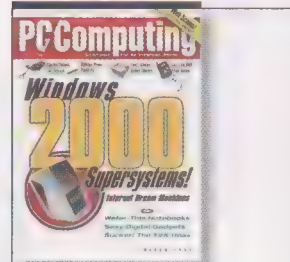
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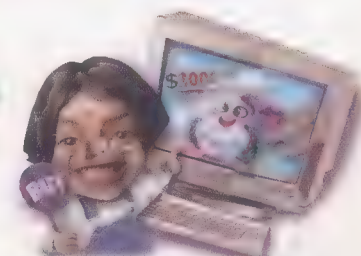
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Leasing Price: \$109/month⁶

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40X Max CD-ROM²
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Leasing Price: \$44/month⁶

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Compaq S700 17" Monitor (15.7" viewable)
40X Max CD-ROM²
Compaq 56K V.90 PCI Modem⁶
Creative Labs SBS50 Speakers
Matrox Millennium G200 AGP
Microsoft Windows98
Microsoft Office 97 Small Business Edition
Free⁴ Trial of Compaq Online Services
3-year Limited Warranty³

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Leasing Price: \$59/month⁹

Customize with these options:

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PROSIGNIA DESKTOP 330

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128 MB (expandable to 256 MB)
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DVD-ROM G3
Compaq 56K V.90 PCI Modem⁶
Creative Labs SBS50 Speakers
Matrox Millennium G200 AGP
Microsoft Windows98
Microsoft Office 97 Small Business Edition
Free⁴ Trial of Compaq Online Services
3-year Limited Warranty³

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Max Internal Storage of 54.6 GB⁷
8 Bays: 4 Removable, 4 Hard Drive
32X Max CD-ROM²
10/100 TX UTP NIC
Compaq V55 15" Monitor (13.7" viewable)
Server Management Software
Pre-Failure Warranty:⁸ Memory, Drives, Processors
3-year Limited Warranty³

\$2,659*

Leasing Price: \$91/month⁹

Customize with these options:

450 MHz Processor Upgrade: \$349
64 MB Memory Addition: \$229
9.1 GB Hard Drive¹ Upgrade: \$289

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Radar

Geek? Or Chic?

You don't need Mr. Blackwell to pronounce your run-of-the-mill computer system a fashion faux pas. But after two dull decades of oh-so-boring beige and occasional gray, a growing number of manufacturers are taking cues from the fashion world and putting panache into their boxes by softening their edges and even adding splashes of color. You've seen what Apple is doing with the aquamarine, tangerine, and lime green iMac. Well, there's more PC chic on the way.

In early 1997, design maven Martha Stewart contemplated a line of natty home computers that would hang on the side of the refrigerator. By the end of the year *PC Computing* was heralding the "sleek and smoky" home PCs that IBM, Toshiba, and NEC were parading before users. And last August, Apple set the tech world topsy-turvy with its stylish iMac.

Call it the mainstreaming of computers in America. A

quick look at the stats—and a peek in neighborhood windows—shows more and more computers in more and more homes. Those pervasive boxes are destined for living rooms, bedrooms, home offices, and dens. But sadly for style-conscious consumers, few of today's PCs meet the most basic interior-design specs.

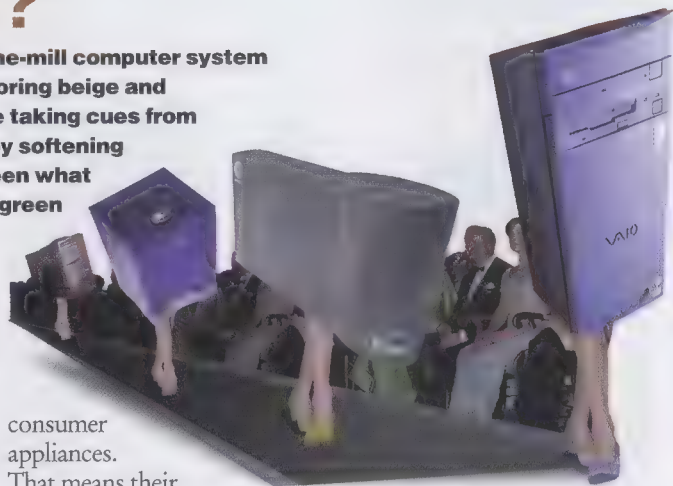
That's changing. PC makers are beginning to move from complex business devices to simpler

consumer appliances. That means their products will be easier to use, sleeker, and more stylish. Watch for these trends:

- **New Shapes** Compact components, fewer chips, and USB ports will result in fewer technological

constraints. Intel's Concept PC is a prime example—prototypes reveal organic, mix-and-match shapes and sizes.

- **More Individuality** Computers basically do the same thing at different



VITAL SIGNS By Beth Wilson

Web Dollars E-commerce is big business. The secret? Patience. The longer a company is involved in e-commerce, the more it learns about online business, and the more revenue it can expect to earn. (Never mind Amazon.com, which logged impressive sales numbers but has yet to turn a profit.) Intel has racked up the most impressive annual e-commerce sales so far: \$10 billion in 1998. Cisco, Dell, and IBM are close behind, followed by Gateway, Microsoft Expedia, Preview Travel, Amazon.com, and Ticketmaster.

Online Brokers (percentage of online market)

■ Charles Schwab
■ Fidelity
■ E*Trade
■ Other

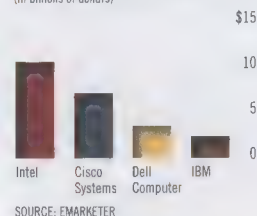


SOURCE: PIPER JAFFRAY

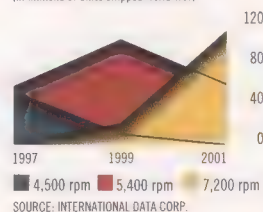
Brokerage Growth Online In the first half of 1998, one out of every five retail stock trades occurred online. The most successful online brokerage firm was Charles Schwab, which first offered online services to customers back in 1984. Schwab now claims 30 percent of the market, handling about 55,000 online transactions every day in addition to its traditional trades. E*Trade offers only online transactions and has nearly 11 percent of the online brokerage market. There are now an estimated 4.3 million people shopping for stocks and funds online, and online trading is expected to reach 31 percent of the total U.S. investment market by 2002.

Faster Future Hard drives are spinning faster and improving computer performance. Just a few years ago, 4,500-rpm drives were the fastest on the market, but production is expected to cease by 2001. In turn, 5,400-rpm drive sales will peak in 1999, then decline as 7,200-rpm models take over the market in 2001. Faster drives reduce latency, upping data transfer rates so that files and apps open faster—a change that's especially noticeable when loading large graphics files or documents.

1998 Online Sales (in billions of dollars)



Hard Disk Speed (in millions of units shipped worldwide)



By Jesse Berst

For links and more information on any story mentioned here, go to www.pccomputing.com/getnow

speeds—give or take a few bells and whistles. Style is one way manufacturers distinguish their products and build brand identity (just ask the auto design gurus in Detroit).

• **Designs for New Locales** The home office and den aren't the only places you find PCs in today's home. They're moving into the living room and the family room where Mom, Dad, and the kids watch DVD movies together, play games, and chat online. And if the computer is parked next to an Ethan Allen couch, it had better be handsome.

harassment charges. No wonder companies are adopting Big Brother surf policies lickety-split.



Through the Back Door More and more IT administrators,

under orders to do more with less, see potential in Linux, the freeware operating system. But because it's still viewed as a renegade in many corporate boardrooms, IT professionals are bringing Linux in discreetly through the back door. Companies

in a range of industries are now using Linux—whether the suits upstairs know it or not.

Jesse Berst is the founder of ZDNet AnchorDesk. To sign up for Jesse's free e-mail newsletter, go to www.pccomputing.com/getnow.

Web Services

Soon you'll get the power desktop software delivers, but it'll come from the Internet via your browser.

In Your In-box

Outbound e-commerce via e-mail will soon become the primary means for achieving the New Marketing concept: pushing relevant ad material to welcoming consumers.

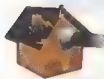
Trouble in Printville

Eighty percent of U.S. online consumers trust online news as much as they trust newspapers, broadcast TV, and cable news outlets. The Net grows; traditional media suffers.

Goodbye PC

Powerful general-purpose PCs will be eclipsed by Internet-focused gizmos like wireless handhelds and smart specialty devices.

Why don't we all have fast Internet access at home? The phone and cable companies are blocking it.



Last Laugh

Ever wonder why America doesn't have fast Internet access to its homes? Is it technology? Is it money? No, it's because the phone and cable companies have set up a blockade. They're refusing to let competing services have access to existing pipes into your home. Believe it or not, though, there's hope the blockade can be circumvented—thanks to Microsoft's move into wireless technology.

Online, Off-Color **X-RATED**

As more firms go online, more employees gain fast access to X-rated material. That puts a company in danger of a lawsuit. If a worker accesses an explicit photo, then leaves it where others can view it, the firm is left open to sexual

REALITY CHECK

JESSE'S SPIN

WHAT THEY SAY



"You go to your TV to turn your brain off. You go to your computer to turn your brain on."

Steve Jobs, Apple interim CEO, on the perceived failure of WebTV, ZDNN, December 1998



"You can turn all your data centers into racquetball courts—raise the quality of life at your organization."

Scott McNealy, chairman and CEO of Sun Microsystems, on the benefits of outsourcing business operations, PC Week Online, December 1998



"Now the U.S. will be able to plumb the depths of space . . . on the power of the Pentium chip."

Bill Richardson, U.S. Secretary of Energy, lauding Intel for licensing Pentium technology to the government sans royalties, ZDTV, December 1998

WHAT THEY MEAN

Hmmm, we're spending millions of dollars to market Apple products on television. How brainy is that?

Better rent out the courts for a hefty fee. You'll need the extra money to pay those big monthly bills.



And all it used to take was a glass of Tang.

MiniDisc in Your Future

In Japan, blank MiniDiscs are as popular as Hello Kitty—although we can't quite fathom either fad here in the States, where cassette tapes are fine for our cars and portable players, and MP3 is all the rage for mixing digital music. But the MiniDisc may have a secret future role in America, right at the heart of your home's digital audio/video entertainment network.

The Future Is MO Better

MiniDisc, you see, is just a brand name. Today's MD serves up 140MB of



magneto-optical storage, or 74 minutes of music

(MiniDisc music is much less compressed than MP3 music). But tomorrow's MiniDisc needn't be so, well, mini. Sharp Electronics is working on a technology called Advanced Storage Magneto Optical (ASMO) that can store and rewrite up to 6GB per disk. A MiniDisc with that much capacity starts to get interesting.

I'm Here to Fix the

Gigaserver In Sharp's vision, there's something called a gigaserver inside your home. It's a computer with monstrous storage that connects to the world via cable, ISDN, CDMA, satellite—whatever—to receive and record movies, music, and data. It feeds television and other devices throughout the home via radio, infrared, and high-speed FireWire connections. These devices communicate by adhering to the Home Audio-Video Interoperability (HAVi) specification, a set of application programming interfaces for entertainment devices. HAVi was defined by Sony, Philips, Hitachi, Sharp, Toshiba, Thomson, Grundig, and Matsushita in an apparent attempt to beat

Microsoft to ownership of the crucial home-entertainment APIs (though Microsoft recently bought a chunk of Thomson). Anyway, you'll occasionally need to transfer video or software from the gigaserver to a removable disk to take to a friend's gigaserver. Hello, MiniDisc!

Four out of Five Dentists

Sony, despite making huge investments in nearly every existing data-storage mechanism (including MiniDiscs, floppies, CDs, and new 200MB HiFD disks), is quietly testing a different digital-storage gizmo for your home-entertainment network: the Memory Stick. It's a purple memory card the shape and size of a stick of chewing gum, and in theory it'll slide into portable stereos, car-navigation systems, portable TVs, video phones, and Sony VAIO computers. (By the way, Sony finally fessed up to what VAIO means: video audio integrated operation.) Currently available only in Chiclet-like 4MB and 8MB capacities, the Memory Stick debuted in Japan last fall as a way to capture stills from Sony's DCR-TRV900 digital camcorder. It may hit America this year.

Sony's Forgotten

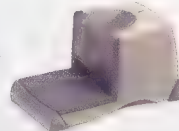
Playmate The PlayStation game system's role in

Sony's grand plan remains unclear.

But it should be noted that PlayStation gamers can connect to the Internet—sort of—using the strange DexDrive from InterAct. The DexDrive hooks up to a PC like a Zip drive, but employs as its storage medium the PlayStation memory cards that you use for saved Crash Bandicoot games and customized Gran Turismo cars. It lets you transfer game information to a PC, then share it through the Internet with other video-game fiends.

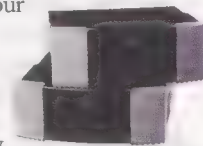
Only Waiting for This

Moment A wild card in the home-entertainment networking future is the Streamaster, Motorola's ambitious computerized set-top box (formerly code-named Blackbird). It's a PowerPC-based computer using VM Labs' ProjectX



Media Processor, will play DVD movies and games with 3-D graphics and MPEG video. It'll also support high-speed Net access via ATM and IP protocols, with built-in Java and HTML, permitting networking in the home via FireWire or Ethernet connections. Basically, it's everything in a box. Did I mention videoconferencing? Motorola says Streamaster-based systems should debut in the first half of this year.

But Why Wait? Lower-tech but brilliant nonetheless is the Leapfrog HomeNetwork from antenna maker Terk. It sends video from a VCR, cable box, or satellite receiver through your house's existing telephone wiring to a waiting TV in another room. The picture and sound are great, and the remote even works. Phone calls are undisturbed. The price for the base system and one receiver is \$180—not bad for a taste of the home-entertainment networking future.



Edited by Gordon Bass.

Not Yet For those

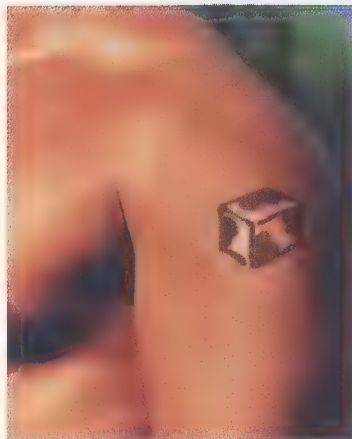
TV-watching moments when you're not quite sure where



you are, you need Panasonic's KX-GA12 (available in Japan for about \$1,200)—a portable TV and CD player that also works as a global positioning system. Because it reads CD-ROMs, it can indicate your location on a map, making it an ideal accessory to hang from a car's rearview mirror.



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More juice.

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More RAM.

More gigabytes.

More glory.

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Even more mail.

**More than one program
running at a time.**

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More modem.

More software.

More music. More tools.

More for my money.

More than I can think of.

More.



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- Mid-Tower Case
- MultiFunction Keyboard & Mouse
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and longitude.**

**More of the earth
moving under my feet.**

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More.



*Weight may vary based on configuration. **Call 1-800-GATEWAY or write to us at Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranty. On-site service not available for Solo portable products. ***All prices and configurations are subject to change without notice or obligation. Prices do not include shipping and handling or any applicable taxes. Loan financing available on approved credit through independent lender. Payments based on 48-month term and an Annual Percentage Rate as low as 14.9%. Your APR may be higher. 2% access check fee (\$2min./\$15max.); not applicable to Gateway purchases.

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(Pictured here: Solo 2500, 13.3" Display, 7.1 lbs.*)



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- Lithium Ion Battery with Battery Gauge & AC Pack
- Two USB Ports, CardBus & Zoomed Video Support
- NTSC/PAL Video Output
- Integrated 16-Bit Sound & Stereo Speakers
- V.90 56K² Modem
- Casual Case
- EZ Pad Pointing Device
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- MS Windows 98 & MS Home Essentials Software
- LapLink V.7.5 for Windows 98 & McAfee VirusScan
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Great Additions:

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- Integrated V.90 Modem
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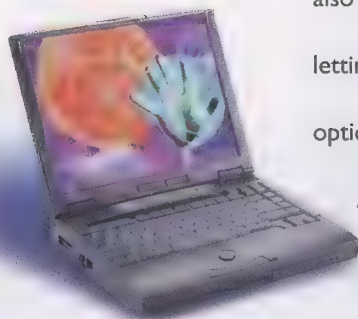
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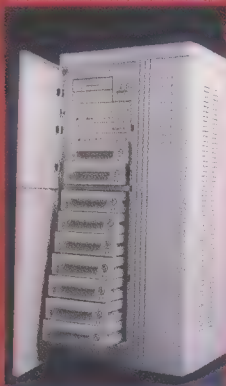
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- Single Channel Ultra2 LVD RAID Controller w/16MB Cache
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- 12-24GB Seagate 4mm DAT Tape Drive
- Sony 32X CD-ROM, Keyboard, Floppy, Mouse
- Full Tower 300 Watt

\$4700

STF DUAL SLOT-2 XEON 400MHZ RAID 5

- 1 Intel Pentium II Xeon 450MHz Processor
- 512KB Cache, Expandable to 2 CPUs
- 256MB SDRAM Expandable to 2GB
- Slots: (6) PCI, (1) ISA, (1) AGP
- Integrated 10/100 Ethernet & Sound
- Matrox 8MB G200 Video
- Q(3) 9GB 10,000RPM LVD (5.0ms)
- Removable HD
- 3 Channel LVD Raid 5 Controller w/16MB Cache
- Sony 32X CD-ROM, Keyboard, Floppy, Mouse
- 13 Bay Tower Chassis 400 Watt Redundant Hot Swap Power

\$7500

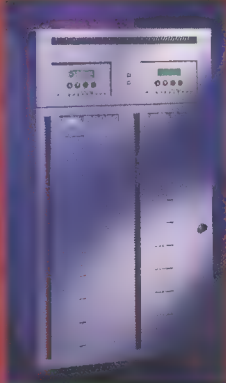
STF DUAL XEON RACKMOUNT-WEB SERVER

- (1) Intel XEON 400 MHz Processor
- 512KB Cache, Expandable to 2 CPUs
- 128MB ECC Memory, Expandable to 2GB
- Slots: (6) PCI, (1) ISA, (1) AGP - GX Chipset
- Integrated 10/100 Ethernet
- 9GB 10,000 RPM LVD (5.0ms) Removable HD
- Integrated Adapter 2940-U2W
- Sony 32X CD-ROM
- Keyboard, Floppy, Mouse
- Rackmount Chassis 300 Watt Power

\$3450



SAMPLE RAID SUBSYSTEMS



- 2 Channel RAID UW Controller • 8 Hot-Swappable Drive Bays • 2-300 Watt N+1 Redundant Power Supplies • 32MB Cache • Internal Temperature Status
- Power Supply Status • Cooling Fan Status • Visual and Audible Alarm:

27GB Solution
Q: (3) 9GB 7200RPM LVD HD
\$6370

27GB Solution
Q: (3) 9GB 10,000RPM (5.0ms) LVD HD
\$6840

54GB Solution
Q: (3) 18GB 10,000RPM LVD HD
\$8351

RTC-20 BAY

- Active/Active Controllers • Q: (2) 4 Channel RAID 5 UW Controllers • 8 - 230 Watt Hot Redundant Power Supplies • 128MB of Cache
- Internal Temperature Status • Power Supply Status • Cooling Fan Status • Visual and Audible Alarm

72GB Solution
Q: (8) 9.1GB 7200RPM LVD HD
\$18,750

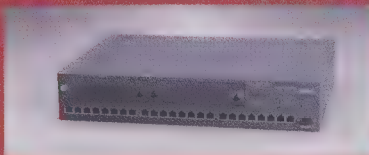
72GB Solution
Q: (8) 9GB 10,000RPM (5.0ms) LVD HD
\$20,300

144GB Solution
Q: (8) 18GB 10,000RPM LVD HD
\$24,498

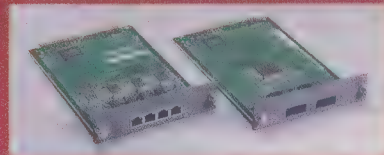
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The ViewSonic P817 21" (20.0" viewable) XtremeMonitor™ is a case in point. With spectacular specs like .22mm horizontal dot pitch, a resolution of 2,048 x 1,536 at a rock solid 85Hz refresh rate and an amazing 360MHz video input bandwidth, it redefines display performance.

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Inharmonious Thoughts

MP3 Blasphemy

Get real.

MP3 is complete junk ("Free Music," January, page 240). The dynamic range is awful and there's no depth of field, no real bass, limited high end, and dropouts galore. I'm not a complete audio snob, but this stuff sounds unacceptable. I've tried a few different decoders and have all the best audio hardware, so that's not the problem. If the smart money says this technology is going to steal away the audio CD business, I'd like to place my bet against it.

Ed LaTourette
via the Internet

Unrepentant Pirate

I don't feel one lick of guilt for pirating MP3 files ("Free Music," January). People have been copying tapes, records, and CDs for decades, yet the music industry has only gotten stronger. The record companies are just greedy and paranoid. Every MP3 enthusiast I know still spends lots of money on CDs. When CDs were introduced, the record companies justified the high price by saying it was expensive to produce the new media. Nowadays CDs cost virtually nothing to make, but they're still charging a fortune. Cry us a river, record companies; nobody's listening.

Chris Wood
via the Internet

Last Boy Scout

There are two types of MP3 files: those created for distribution and those created for profit ("Free Music," January). Converting commercial CDs to MP3 files and transferring those files to people who don't own the original CD is pure copyright infringement. It's no different from distributing copyrighted software apps over the Internet. In other words, it's illegal and unethical.

David Rientjes
via the Internet

Guerrilla Tactics

Do I feel guilty about pirating music files with MP3 ("Free Music," January)? Absolutely not. Is there a company of

any kind in the world that feels guilty about charging outrageous prices for its goods or services? Is there a company that really believes in customer service? Is there a company that cares that after endless phone menus I might get to talk to a mindless idiot? I'll take what I can, when I can.

Robert M. Ruo
via the Internet

Artistic Expression

It's great to see some positive press about the MP3 explosion ("Free Music," January). The rest of the media seems to be on the recording industry's payroll, fostering the silly notion that only evil pirate felons use this rogue technology. How about taking your open-mindedness one step further by doing an article on the real story, MP3 artists? There are thousands of us at MP3.com alone. Yet author Don Steinberg makes only passing reference to "garage bands." Most of us are serious, professional musicians, snubbed for years by monolithic record companies. We only now enjoy a means of international distribution. Support independent music!

Bob Smith
via the Internet

Excluded Stupidity

I enjoyed "The Floppies" in the January issue (page 192). But Don Steinberg missed a funny point concerning the woman who gave birth over the Internet.



Inducing the mother's labor to preserve bandwidth is laughable, but even more absurd is the fact that the law recognized and apprehended the woman for her long history of writing bad checks.

Jeff Arndt
via the Internet

Hairy Bipeds

In "The Floppies" (January), Don Steinberg quips, "Koko the gorilla chatted live with members of America Online in what may or may not have been the first use of AOL chat's facility by a subhuman primate." I've visited several AOL chat rooms and can honestly say that most of the users are sub-Koko. I'll find a 10-carat diamond in my Cracker Jack box long before I find intelligent conversation in a chat room.

Karen M. Campbell
via the Internet

Filter Your Filters

In "Death to Spam" (Help, January, page 255), Peter Deegan suggests using filters to separate junk from useful e-mail. This is a necessity these days. However, I recently got rid of all my filters but one. I set this last filter to search the "To:" header of incoming mail. If the filter doesn't find my actual e-mail address, it trashes the message. I can then go through the Recycle Bin at my convenience to ensure nothing critical was lost.

For the few months I've been using this filter, not one piece of spam has made it to my in-box. I hope this helps readers who may have 50 different filters, like I once did.

Michael Langston
via the Internet

Counterproductive Strategy

Articles like January's "Death to Spam" cause more harm than good by encouraging readers to hide from unsolicited commercial e-mail instead of taking action against spammers. We need to send spammers a clear message that their practices will not be tolerated. People who complain about spam are making a difference. Case in point: all the ISPs that now have antispam policies in place.

Charles McCollm
via the Internet

Card Shark

Thanks to Taylor & Jerome for "Backdoor Fortune" (January, page 67). While

often taking input on new financial products and services with a grain of salt, I logged onto www.nextcard.com and found it to be just as easy as they had said. I'm now a proud member of the potential Net bank of the future. Taylor & Jerome's prognostications regarding online banking are sound. Keep it up.

Malcolm Northrup
via the Internet

Nixing NextCard

Taylor & Jerome should look a little closer at what NextCard is charging ("Backdoor Fortune," January). Though the introductory rate is appealing, the company gives it to you for a meager three months. I love NextCard's concept, but most people who can afford computers and Internet providers have decent incomes and good credit. For now, better rates are available with conventional plastic. Let's hope that changes soon.

Steve Lopey
via the Internet

Whistling Dixie

I must protest a comment Taylor & Jerome make in "Backdoor Fortune" (January). In their otherwise cogent discussion of e-commerce and its pitfalls, this benighted pair makes a snide reference to phone service reps who have "low IQs and harsh Southern twangs." I'm Southern born and bred, and I'll be happy to compare my IQ and education with theirs anytime. Besides, we Southerners drawl—we don't twang. That delightful vocal aberration is more properly ascribed to Yankees and Midwesterners.

John Foote
via the Internet

In the Red

I remember the days when very few people used the text-based Internet. Now, only about four years later, you can do virtually anything on the richly graphical Web. As technology advances and Internet censorship becomes a bigger and bigger issue, we must be creative in order to

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handle the problem. So I open January's issue of *PC Computing* only to find an excellent solution. In Radar (page 14), Jesse Berst presents his Red Zone idea. In a nutshell, Berst suggests we tag all adult sites with a .red suffix. Why can't the government come up with a similar solution to the problem? Keep up the innovative thinking.

Jeremy Lattimore
via the Internet

Help That Hurts

In "10 Traps That Sink Most Small Companies—and How to Avoid Them" (January, page 231), Jenny C. McCune writes, "Don't scrimp with computers assembled in someone's garage down the road." I run a small computer business out of my converted garage and use only the highest quality components. Why slam small companies in an article written to help small companies?

Cliff Harrison
via the Internet

David and Goliath

Maybe I'm missing something, but two Ziff-Davis magazines seem to differ widely in their comparisons of Intel's and AMD's market shares. In September, *PC Magazine* reported that in the first half of 1998 Intel shipped 84 percent of all chips to AMD's 9 percent. Yet in the January issue of *PC Computing* (Radar, page 14), Beth Wilson notes that Intel held a 70 percent market share for the first month of 1998 and by year's end was actually surpassed by AMD. Please explain.

Larry Wolfe
via the Internet

PC MAGAZINE'S figures refer to total shipments of chips, whereas ours refer to chips in desktop PCs sold in the retail channel. **GB**

Double-Wide Display

John C. Dvorak writes interestingly about the future of displays ("Your New

Desktop," January, page 69). Instead of multiple displays, though, how about a 3-foot-wide standard-height flat panel with enough real estate for a row of all open applications?

Jaakko Laukka
via the Internet

3-D Windows

In "Your New Desktop" (January), John C. Dvorak discusses using multiple displays. But just try doing that on an airplane. Why not one 3-D interface instead? Then we wouldn't need to layer windows.

Robert Miller
via the Internet

WHAT WILL IT TAKE TO GET YOU TO USE INTERNET BANKING? Send your thoughts about this and other subjects to Mail, *PC Computing*, 50 Beale St., 13th Floor, San Francisco, CA 94105; or via the Internet, pccmail@zd.com. Letters may be edited for length and clarity.



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A-List

By Christine Grech Wendin

Systems and Servers

TRENDS

CPU Uptick Intel's new 500MHz Pentium III CPU isn't the only new game in town. The chip maker recently unveiled its 400MHz Celeron processor. More chip choices mean even more competition for your dollars. Look for affordable new systems based on the chip from Compaq, Dell, and Hewlett-Packard first.

A-List

EDITOR'S TOP PICKS IN EVERY MAJOR CATEGORY

Hardware

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- 44 Notebooks
- 46 Printers
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- 50 Peripherals
- 52 Graphics & Video
- 54 Communications

Software

- 59 Productivity Applications
- 60 Graphics
- 62 System & Network Tools

Internet

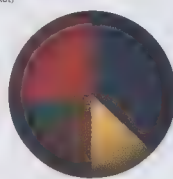
- 64 Web Browsers & Utilities
- 66 E-commerce & Services

Digital Office

- 70 Business Tools

Small-Office PCs (percentage of market)

- PC Clone
- Dell
- Compaq
- IBM
- Other

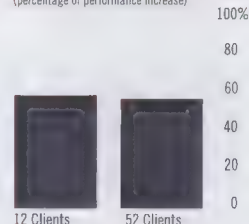


SOURCE: ZD MARKET INTELLIGENCE

No Name, Please Everybody wants to sell to small businesses these days—just look at the enticing leasing deals and special services (including support and backup) companies like Dell, Compaq, and IBM now offer. And they've got good reason: While Dell and Compaq have the biggest share of name-brand sales, most price-conscious small offices are choosing value-priced PCs from no-name clone makers.

Return on Investment With system prices at an all-time low it's tempting to set up a workgroup server on the cheap. But it pays to spend a little more up front. Forgo a plain-vanilla Pentium II box in favor of a dual-processor system. Our top pick, the Compaq ProLiant 1600, pays for itself in about eight months, whether you're running a 12- or 52-client network. That's a savings of more than \$6,000 a year!

Dual-CPU Payoff (percentage of performance increase)



SOURCE: PC COMPUTING LABS

BUYER'S CHECKLIST

LOW-COST PCs



**Dell
Dimension
XPS R400**



**Compaq ProLiant
6000 Xeon**



EDITOR'S **A-List** PICKS

STATE-OF-THE-ART DESKTOP PC

NEC Direction SP B450 What's not to love? The Direction SP B450 is fast, loaded, and affordable. NEC starts with a 450MHz Pentium II, adds 64MB of RAM, IBM's speedy 14.4GB hard drive, and tops it all off with a 16MB Diamond Viper AGP graphics card. NEC even includes a modem or network card so you're ready to make the right connections.

\$2,249 est. street price / NEC Technologies / (888) 863-2669

HIGH-PERFORMANCE PC

Dell Dimension XPS R400 Here's a good reason to jump on the e-shopping bandwagon. Configure your own Dimension XPS R400 at Dell's excellent Web site without once talking to a salesperson—unless you want to. Choose a 400MHz system that's loaded with 128MB of RAM, a 14.4GB hard drive, an STB Velocity 128 graphics card, a DVD drive, and a Zip drive.

\$2,399 est. street price / Dell Computer Corp. / (800) 388-8542

DESKTOP WORKHORSE

Gateway E-3200 450 It's the Volvo of the computer industry. This 450MHz protable is designed for speed and safety, with a built-in network card and smart management features like a tool-free case and a slide-out motherboard that accepts any Pentium-class chip. So you can roll out these puppies to your staff and let them fiddle away all they please, comfy in the knowledge that a quick repair will just take seconds.

\$1,972 est. street price / Gateway / (800) 846-2408

LOW-COST DESKTOP PC

Microworkz zPC Pocket change—that's all it takes to buy a fully loaded PC. For budget-meisters, the Microworkz zPC is the best deal going. Less than \$600 gets you a 300MHz M2 CPU, 32MB of RAM, a 3.2GB hard drive, a 12X CD-ROM drive, a 56Kbps modem, a sound card, speakers, and a 14-inch display.

\$589 est. street price / Microworkz / (888) 538-5791

SOHO SYSTEM/HOME ENTERTAINMENT PC

Sony VAIO PCV-E308DS Santa was good to you and brought you a digital camcorder. Now you need the perfect PC companion: the Sony VAIO PCV-E308DS. Your FireWire camera plugs right into the PC, plus you get inputs for all your other electronic goodies. Sony even sweetens the deal with video editing software that makes you look like a pro.

\$2,000 est. street price / Sony Electronics / (888) 315-7669

WORKSTATION

Hewlett-Packard Kayak XU PC Workstation

Amazing graphics—most people won't believe you created them on a desktop PC. The Kayak XU PC Workstation's dual 450MHz Xeon processors give you all the muscle you need, and the system's pair of SCSI hard drives make sure your creations keep pace.

\$6,690 est. street price / Hewlett-Packard / (800) 752-0900

SMALL-BUSINESS SERVER

Cobalt Qube 2700WG Microserver You don't need to wait for Windows 2000 to get an easy-to-manage server. With the Qube Microserver 2700WG, administering your network or intranet is as easy as surfing the Web. Handle all your network chores from your browser, and let the Linux-based Qube take care of the rest.

Starts at \$1,249 est. street price / Cobalt Networks / (888) 702-6225

WORKGROUP SERVER

Compaq ProLiant 1600 Your workgroup's small now, but it won't be for long if you have your way. That's why you need the ProLiant 1600. As a file, app, or Web server, it does the job, thanks to its dual 400MHz Pentium II CPUs, 512MB of RAM, and six 4.3GB hard drives. Another bonus: The more you throw at the ProLiant 1600, the better it performs.

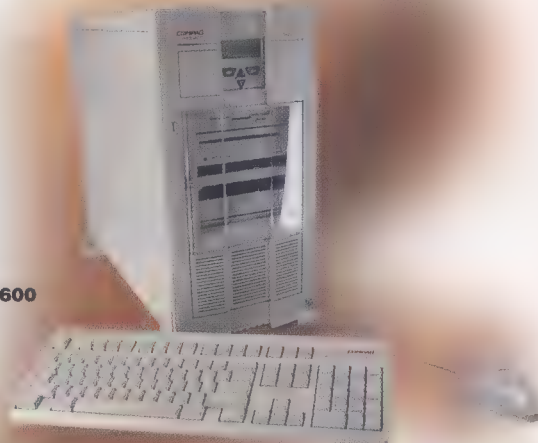
\$10,591 est. street price / Compaq Computer Corp. / (800) 345-1518

DEPARTMENTAL SERVER

Compaq ProLiant 6000 Xeon Buy now, no worries later. Compaq knows your server will be with you longer than the new marketing guy. That means a system that easily grows with you: Start with a pair of 400MHz Xeon processors, then scale up to four when you're ready.

\$31,961 est. street price / Compaq Computer Corp. / (800) 345-1518

**Compaq
ProLiant 1600**



TRENDS

Hold the Anchovies No one even feigns surprise that you can order a \$3,500 desktop replacement notebook or a \$300 handheld digital assistant today the same way you'd order a \$15 pizza. Manufacturers like Compaq, IBM, and Toshiba that once favored the retail channel increasingly see their future in phone- and Web-based sales.

EDITOR'S **A-List** PICKS

PORTABLE DESKTOP REPLACEMENT

IBM ThinkPad 770X It's the corner office as notebook PCs go. The 7.1-pound ThinkPad 770X declares that you've arrived: It exudes refinement and sophistication. Its 14.1-inch active-matrix display is crisper than a monitor and delivers as much viewable real estate. Its swappable DVD and 8GB hard drives leapfrog technologies found in most desktop systems. And its usability and design are the best.

\$4,999 est. street price / IBM Corp. / (800) 426-7255

LIGHTWEIGHT TRAVELING COMPANION

Toshiba Portégé 3010CT You have only yourself to blame for throbbing shoulders and lower-back pain. Lighten up: Toshiba's Portégé 3010CT remedies these ails. It weighs less than 3 pounds, yet comes with a 10.4-inch active-matrix display, a fast Pentium II processor, and all the bells and whistles you'd expect. E-mail, Web access, light productivity? It handles these chores and more.

\$1,999 est. street price / Toshiba / (888) 598-7802

New

WORKHORSE PORTABLE

NEC Versa SX Spend three hours working with NEC's Versa SX and you'll be reluctant to return to the slow beige box on your desktop. The Versa SX's latest iteration boasts a 366MHz Pentium II CPU and has power to spare. Its 14.1-inch active-matrix display, 64MB of memory, and 5GB hard drive won't leave you wanting—even for high-end productivity apps. Yet when its pounds are counted (5.3), your shoulders will like it too.

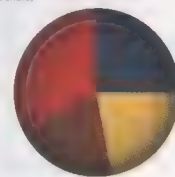
\$3,799 est. street price / NEC Technologies / (888) 863-2699

Who's Missing? Direct-only dealers Dell, Gateway, and Micron still sell far more notebooks over the phone than companies that rely on retail as well—but how long will this trend continue?

Among makers that also sell portables in stores, Toshiba, Compaq, and IBM own the lion's share of this growing market.

Top Notebook Brands
(mail-order market share)

■ Toshiba
■ Compaq
■ IBM
■ Other



SOURCE: ZD MARKET INTELLIGENCE

LOW-COST PORTABLE

Toshiba Satellite 2505CDS Don't tell friends or colleagues how little you spent on the 6.7-pound Toshiba Satellite 2505CDS. Just impress them with its features: a 233MHz Pentium CPU, 32MB of memory, and a 12.1-inch color screen. If they press you, say it cost less than \$3,000. But don't let on that it cost less than \$1,200. No one needs to know just how much you saved.

\$1,199 est. street price / Toshiba / (888) 598-7802

HANDHELD PC

3Com Palm III Connected Organizer Failed efforts at handheld PCs are too numerous to count. But 3Com's Palm III Connected Organizer finally gets it right: elegant, easy to master, and useful beyond words. Best of all, it talks to the calendar on your desktop PC with a touch of a button. You'll find lots of great apps for it—many of them free—at www.palmpilotsoftware.com.

\$369 est. street price / 3Com Corp. / (800) 881-7256

BUYER'S CHECKLIST

NT ON THE ROAD

Hard Drive

Fat graphics and full-motion video now sneak into everyday apps. A 4GB hard drive is the minimum capacity you want.

PC Cards

As yet, there's no plug and play with Windows NT. If you depend on peripherals, make sure the drivers work.

Batteries Power management is for sissies. At least, this is NT's catcall—since the OS doesn't support Advanced Power Management. For long hops, you'll want a second battery.

CPU and RAM

Why run a 64-bit OS unless you've got strong iron under it? A 300MHz Pentium II and 64MB of RAM will do you right. A new 366MHz PII and 128MB will do you better.



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AOL Keyword: Onsale

By Kyla K. Carlson



Ink to Paper Lexmark's Optra Color 1200n is the best color laser money can buy. But it takes serious money to get one—more than \$8,000. A cheaper option for your business? The HP 2000C. It costs a mere \$799 yet delivers stunning output at respectable speeds of 10 ppm black and 7 ppm color. Even better, it's ready to hook up to your network out of the box.

EDITOR'S **A-List** PICKS

PERSONAL LASER PRINTER

NEC SuperScript 870 Can't afford a network printer? There's another way: Buy several of the amazingly affordable SuperScript 870s. At just \$349, it fits your budget for home or office. Most important, its 8-ppm engine and 600-dpi output mean you won't be waiting for your professional-looking documents. Worried about adding new hardware as the year 2000 approaches? Don't be. NEC's SuperScript printers are Y2K-ready.

\$349 est. street price / NEC Technologies / (800) 632-4636

HIGH-SPEED LASER PRINTER

Lexmark Optra S 1255 Rules are made to be broken, and the best-looking output doesn't have to cost the most. Take a look at the Optra S 1255. This amazing laser printer costs less than a grand, yet its 12-ppm engine prints crisp-looking pages right before your eyes.

\$866 est. street price / Lexmark Int'l / (800) 539-6275

HIGH-SPEED NETWORK LASER PRINTER

Xerox DocuPrint N32 Bet your network printer isn't fast enough. If you think 17 ppm does the job, do a reality check the next time you're in the printer queue. Practically double your print speeds—and boost your productivity—with the 32-ppm DocuPrint N32. It costs a lot less than you think.

\$2,900 est. street price / Xerox Corp. / (800) 349-3769

PERSONAL COLOR PRINTER

Epson Stylus Color 850 Whether it's a picture of your kids or the presentation to land a multimillion dollar account, the Stylus Color 850 makes your documents drop-dead gorgeous. You'll never believe the winning output came from a \$349 printer.

\$349 est. street price / Epson America / (800) 463-7766

Photos for the File

Finally, color lasers are within reach of most businesses. But the big surprise is who uses them most. While service companies like copy shops and design firms rely on color lasers, insurance companies use their biggest fans. At least those photos of property damage will look good for the record.

Color Lasers at Work
(percentage of overall users)

NETWORK COLOR PRINTER

Lexmark Optra Color 1200n Twelve is your lucky number. That's how many pages of both text and 600-dpi graphics the Optra 1200n prints in a minute. It saves you time and money too: Thanks to a single-pass printing system you won't be kept waiting, and laser technology means your color output costs just pennies per page.

\$8,499 est. street price / Lexmark Int'l / (800) 539-6275

PERSONAL PHOTO PRINTER

Hewlett-Packard PhotoSmart Photo Printer Forget the photography class. Here's one tip that guarantees brilliant photos every time: Print them on the PhotoSmart. It's like having a photo lab on your desktop. Not only does it print 4-by-6 inch photos, but you can enlarge them to 8.5-by-11 inches instantly.

\$299 est. street price / Hewlett-Packard / (800) 752-0900

PROFESSIONAL PHOTO PRINTER

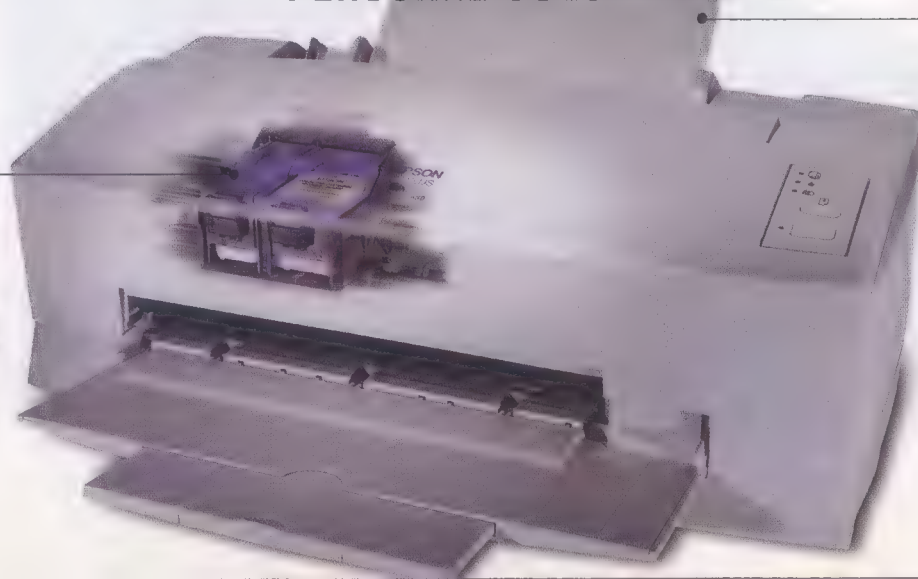
Imaging Technologies ColorImage 3000 When you can't waste time or money dealing with prints that don't look perfect, get the ColorImage 3000. ICC color-matching profiles mean the colors look right every time. The colors are correct, as well as vivid and brilliant—just like your photographs.

\$8,499 list price / Imaging Technologies Corp. / (800) 756-0556

BUYER'S CHECKLIST

PERSONAL COLOR PRINTER

Ink Get a printer that has at least two print heads and supports dual ink cartridges (one for color and one for black). Even better, choose one that lets you replace each color cartridge separately.



Paper

Specialized paper gives you the best output, but it's expensive. Make sure the printer also works well with plain paper for your proofs and text documents.

Software

You want a printer that gives you more than just drivers. Look for software that lets you turn your printer into a PC design studio.

SHOP FOR HARDWARE

AND SOFTWARE IN YOUR UNDERWEAR

You're ready to shop for a new computer? But you're too busy to leave your computer?
Shop for hardware, software, you know where: on-line. You'll find all the computer stuff you need.

It's fast. It's safe. It's a lot easier to browse the web.



Worldwide. Webwide. Visa® It's everywhere you want to be®

TRENDS

Dearly Departed With the recent bankruptcies of SyQuest, maker of the SparQ 1.0GB, and Avatar Peripherals, inventor of the Shark 250MB, Iomega is poised to expand its already massive share of the removable storage market. And it won't stop at the desktop. Look for Iomega to build Zip drives into printers, scanners, medical equipment, set-top boxes, and more.

EDITOR'S **A-List** PICKS

DESKTOP HARD DRIVE

Deskstar 22GXP It's everything you want in a hard drive: big, fast, cheap, and reliable. With 22GB of storage space and a 2MB cache, you'll never fully satiate this beast's cravings for data and fat applications. Best of all, you'll enjoy superfast access to your information thanks to seek times of 9 milliseconds and a sustained data transfer rate of 17.9MBps.

\$599 est. street price / IBM Corp. / (888) 426-5214

New REMOVABLE STORAGE

Iomega Zip 250MB Drive The biggest name in removable storage just got bigger thanks to the Zip drive's increased capacity—it now holds a generous 250MB of data. And because the new version reads and writes to the millions of 100MB Zip cartridges residing on desktops the world over, you have little to worry about in the way of compatibility—unless, of course, you try to stick a 250MB cartridge into one of the smaller-capacity drives.

\$199 est. street price / Iomega Corp. / (800) 697-8833

HIGH-CAPACITY REMOVABLE STORAGE

Iomega Jaz 2GB Many artists are suspicious of technology, but their ill feelings usually melt away when they're introduced to Iomega's Jaz 2GB. That's because with just one \$125 cartridge you can store 2,000 digital photos, over three hours of music, or nearly two hours of video. And the drive's engine runs fast enough to stream that video or serve up demanding apps like Adobe Photoshop.

\$349 est. street price / Iomega Corp. / (800) 697-8833

DVD/CD-ROM DRIVE

Sony DDU 220E/H 5X DVD-ROM Bundle This third-generation DVD player could spark a renaissance in American scholarship. You'll be so awed by its TV-quality picture, you just might spend the entire evening with the bundled Funk and Wagnalls DVD Encyclopedia learning the finer points of ancient Indonesian agriculture. (Turns out they grew rice on terraces. Who knew?) The secret to the smooth video: Sigma Designs' Hollywood Plus DVD/MPEG-2 decoder card.

\$349 list price / Sony Electronics / (800) 352-7669

TOP 5 BEST-SELLING DVD TITLES

Holding out to get a DVD-ROM drive because you think the title selection is still too skimpy? No more. Check out these popular discs, which are just the reason you need to make the switch.

- 1 **Riven: The Sequel to Myst**
- 2 **Tex Murphy: Overseer**
- 3 **The Journeyman Project 3: Legacy of Time**
- 4 **Microsoft Encarta Encyclopedia Deluxe**
- 5 **National Geographic Complete 109 Years**

SOURCE: PC DATA

Write Stuff We've been hearing about the promise of rewritable DVD drives for a few years now. But the drives are finally coming into their own with promising products from companies like Creative Labs, Hitachi, and LaCie.

Look for them to catch on next year. Why the shift to DVD? The prospect of saving up to 17GB of data onto a single disc is too good to pass up.

Rewritable DVD Drives
(in millions of units shipped)

SOURCE: DATAQUEST, IDG, DISKTREND

RECORDABLE STORAGE

Smart and Friendly CD-SpeedWriter Deluxe

Launch your garage band into stardom—and record all the video, apps, images, and documents you desire—with this 4X-write, 12X-read drive. Using its foolproof recording software, you can burn inexpensive yet universally accepted 650MB CDs in less than 20 minutes.

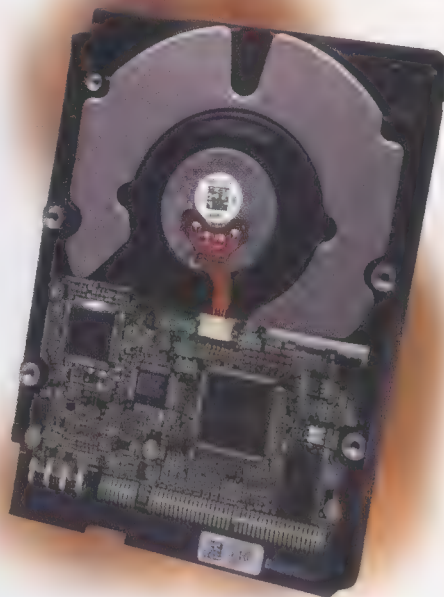
\$499 est. street price / Smart and Friendly / (800) 959-7001

NETWORK STORAGE

Seagate Cheetah 18 No hard drive can match the Cheetah 18's performance. This 10,000-rpm Ultra 2 SCSI screamer is precisely what a well-oiled network craves. With an average seek time of 5.7ms and an internal transfer rate of up to 231Mbps, it's the ticket for video professionals too.

\$999 est. street price / Seagate Technology / (800) 732-4283

IBM Deskstar
22GXP



Shockwave websites grab you by the eyeballs.



Shockwave is on every website
that needs to deliver a captivating experience.
It's on every new Macintosh® and Windows® PC.

It's in your web browser. It's entertaining,
irresistible, effective. Make it with

Director® 7 Shockwave™ Internet Studio™

Use it to add life to the web.

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DIRECTOR

SHOCKWAVE

DREAMWEAVER

FIREWORKS

FLASH

FREEHAND

GENERATOR

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Infolink 265 at: www.pccomputing.com/infolink

TRENDS

Snap Away With your cool digital camera you feel like a professional photographer, but the photos take so long to process and those skimpy storage cards don't seem to hold many shots. Lexar's High Performance Pro Series digital film PC Cards hold a whopping 160MB of images each, and their 8X speed lets you take consecutive shots so you won't miss a thing.

EDITOR'S A-List PICKS

PERSONAL DOCUMENT SCANNER

Visioneer PaperPort One Touch 5300 If you're intimidated by scanners, this one will change your mind. It's as easy to use as a copy machine. The PaperPort One Touch 5300 has five handy buttons in front to launch scanning, printing, copy and fax utilities, and other apps. Choose either the USB or parallel port version.

\$129 est. street price / Visioneer / (800) 358-3298

GRAPHICS SCANNER

Epson Expression 800 Executive Don't let the professionals get all the good scans. Now you can do it yourself with Epson's 36-bit color flatbed Expression 800 Executive. It delivers high-resolution scans that are incredibly true to the original. You'll also love the handy software bundle that helps you get perfect scans with minimal effort or hassles.

\$699 est. street price / Epson America / (800) 463-7766

DIGITAL CAMERA

Kodak DC260 Zoom Camera Finally, a good reason to chuck your film camera. Kodak's DC260 Zoom Camera may be just the perfect digital camera. Its 1,536-by-1,024-dpi resolution, 3X optical zoom, easy LCD controls, and hassle-free connection to your PC mean you don't give up a thing.

\$899 est. street price / Eastman Kodak / (800) 235-6325

SOUND CARD

Creative Labs SoundBlaster Live Want PC sound that rocks? The SoundBlaster Live's PCI audio with 256 voices, true 3-D surround sound, and a generous software bundle will liven up games, music, even presentations. Plug in a four-piece speaker set and really make the most of your PC's audio.

\$200 est. street price / Creative Labs / (800) 998-5227

New Connections An increasing number of peripherals give you a choice of USB or parallel connection—the Visioneer PaperPort OneTouch 5300, for example. But USB is still the exception. Expect that to change as more PCs ship with USB. By next year, USB should overtake both the serial and parallel port as the standard PC connection.

USB Devices
(in millions of units)



SOURCE: DATAQUEST

SPEAKERS

MidiLand S2 4100 Don't settle for rinky-dink sound from pint-size speaker sets. If you want to crank up the volume, give this 100-watt, four-piece speaker set with an enormous subwoofer a spin. Its sleek design looks pretty cool too. Who needs a separate stereo when you've got this PC sound system pumping out the tunes?

\$400 est. street price / MidiLand / (888) 592-1168

UNINTERRUPTIBLE POWER SUPPLY

American Power Conversion Back-UPS Pro 650 All it takes is one power surge to zap your PC—and obliterate your data. Armed with the Back-UPS Pro 650, you won't sweat any storm. Its long battery life, 650 VA protection, three battery-backup outlets, and three surge-only outlets will keep you safe.

\$265 est. street price / American Power Conversion / (800) 800-4272

INPUT DEVICE

Logitech Cordless Wheel Mouse How many times has your mouse cord sent your coffee cup flying? Here's a wireless device that works and will keep your desk spill-free. Its RF technology means you don't even need to point the mouse at the receiver to make it work. And thanks to its handy scroll wheel, you can navigate up and down Web pages with a flick of the finger.

\$60 est. street price / Logitech / (800) 239-7717

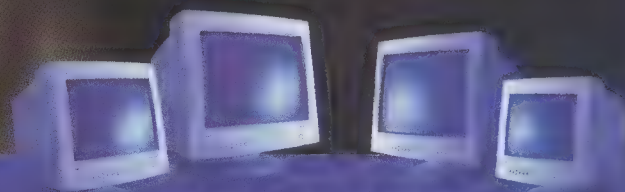
CHEAT SHEET FILE FORMATS

TIFF? JPEG? BMP? Which format is best for saving your scans or digital photos? Here are the quick answers.

	Recommended Image Type	File Size	The Scoop
Put images on the Web.	gif	256 colors, 184k	Small file sizes load faster, and images can have transparent backgrounds.
Put full-color images on the Web or send them via e-mail.	jpg	16 million colors, 30k	Files can be compressed to a very small size, though image quality suffers at higher levels of compression.
Add images to print projects such as newsletters and color reports.	tif	16 million colors, 790k	Files can be compressed slightly, and images don't lose quality.
Create Windows wallpaper and folder backgrounds.	bmp	16 million colors, 900k	Files are huge because they can't be compressed.

We can't say what applications she'll be using in five years.

We can, however, predict the monitor.



MultiSync
by NEC Technologies

Software goes out of date. CPUs are superseded.

OUR NEW SHORT-DEPTH MULTISYNC E750
COMPLETES THE E SERIES FAMILY

In the face of nearly chaotic change, it's reassuring to know you can count on MultiSync® E Series monitors for years to come. Take a look. Our CromaClear® and dot trio CRTs deliver all the contrast, sharpness and color-saturation you need for demanding applications. But what isn't so apparent is the reliability and flexibility we build into each monitor. Refresh rates up to 120 Hz, PC and Macintosh compatibility and

the optional IntelliBase® Series monitor bases mean they'll grow as your needs change. And for added security, they're backed by a three-year warranty. MultiSync E Series monitors. With longevity like this, you might just retire before your monitors do.

	MultiSync E500™	MultiSync E750™	MultiSync E1100™	MultiSync E1100+™
Viewable Image Area	11.1"	16.0"	11.1"	19.8"
CRT	CromaClear®	Short-depth CromaClear	Dot trio	Microfilter® D-Trio®
Dot Pitch	0.25mm mask	0.25mm	0.26mm dot 0.22mm horizontal	0.24mm dot 0.24mm horizontal
Maximum Resolution	1280 x 1024 @ 65Hz	1600 x 1200 @ 73Hz	1600 x 1200 @ 77Hz	1600 x 1200 @ 77Hz

NEC



IntelliBase

Intelligent base and adjustable



NEC Technologies

To learn more or for a reseller near you, call (800) NEC-INFO or visit us at www.nectech.com. Expect more. Experience more.

Infolink 236 at: www.pccomputing.com/infolink

TRENDS

Skinny Show Flat-panel displays are finally growing up. Most monitor makers already offer standard 14- and 15-inch models, so now the real action is in bigger pictures. Look for a new crop of 18-inch displays, like the upcoming one from Compaq, to hit store shelves soon. The best news of all? More competition on the high end means lower prices all around.

EDITOR'S A-List PICKS

HIGH-RESOLUTION 17/19-INCH MONITOR

Iiyama VisionMaster 450 Seeing is believing: This 19-inch monitor shows off supervibrant colors and great-looking photorealistic images. It has a tight .26-dot pitch and supports 1,600 by 1,200 resolution at a flicker-free 80Hz. It also comes with an enticing \$659 price tag.

\$659 est. street price / Iiyama North America / (800) 594-7480

HIGH-RESOLUTION 20/21-INCH MONITOR

Sony Multiscan GDM F-500 Computer Display with FD Trinitron Curves aren't always sexy—we prefer the flat-screen good looks of the Sony GDM F-500. It's a traditional CRT monitor, yet it boasts a tube that's as flat as any of today's popular LCD displays. And you'll love this 21-inch monitor's eye-popping images at up to 1,800 by 1,440 resolution.

\$1,900 est. street price / Sony Electronics / (800) 352-7669

FLAT-PANEL DISPLAY

Silicon Graphics Digital Flat Panel Solution Pack It's big and it's digital. These two features alone make the Digital Flat Panel Solution Pack the best LCD monitor you can buy. The 1600SW, a 17.3-inch SuperWide format screen, lets you switch between open windows with ease, and the included Number Nine 32MB Revolution IV digital-output graphics card ensures a rock-steady image.

\$2,795 est. street price / Silicon Graphics / (888) 744-7373

Return on Investment A 19-inch monitor doesn't take up much more space than a 17-inch display—yet it gives you 25 percent more picture. That's money in the bank.

A bigger screen means less toggling between apps and less scrolling, which makes you work faster. We saw the biggest performance increase when running spreadsheet apps on a monitor larger than 15 inches—13 percent faster for a 17-inch display and 27 percent faster for a 19-inch display. Both sizes pay for themselves within two months.

Display Boost
(percentage of performance increase)



HIGH-PERFORMANCE GRAPHICS ACCELERATOR

Matrox Graphics Millennium G200 The difference between an office workhorse and a graphics workstation is shrinking every day. With a versatile graphics accelerator like the Millennium G200 in your system you'll see what we mean. This 128-bit AGP card delivers no-compromise 2-D along with the 3-D speed you need for your favorite games.

\$149 est. street price / Matrox Graphics / (800) 844-8305

3-D GAMES ACCELERATOR

ATI Rage Fury The 3-D stakes have been upped another notch with ATI's new Rage Fury graphics accelerator. This AGP-based card comes loaded with 32MB of RAM and the best 3-D performance we've seen yet. You'll love the Rage Fury's photorealistic 32-bit color and all the card's extras, including hardware-DVD playback.

\$199 est. street price / ATI Technologies / (905) 882-2600

PRESENTATION DISPLAYS/PROJECTOR

In Focus LP425 Throw this ultraportable projector over your shoulder, and you become a one-person mobile presentation team. At 6.8 pounds, the In Focus LP425 won't weigh you down. And its superbright SVGA image is sure to make a good impression on even the toughest audiences.

\$4,200 est. street price / In Focus / (800) 294-6400

DIGITAL CAMCORDER

Canon Optura Put away that clunky analog camcorder you've been lugging around since 1985. The Optura is a sleek digital model that's perfect for the new millennium. While you effortlessly cradle the device in one hand to chase the coolest footage, the camera's progressive scan CCD guarantees a quality picture.

\$2,699 list price / Canon U.S.A. / (800) 652-2666

DIGITAL VIDEO CAPTURE

Matrox Graphics Marvel G200-TV Turn your PC into an audiovisual digital studio with the Marvel G200-TV. Plug your camcorder or VCR into the blue box, and grab full-motion video with ease. The included Avid Cinema software makes it a cinch to edit all this footage into great-looking movies.

\$299 est. street price / Matrox Graphics / (800) 844-8305

HOW IT WORKS VIDEO RAM

The \$150 you spent last year for a standard 4MB graphics card now buys a card with 16MB or 32MB of video memory. The benefit? A much better picture.



Resolution

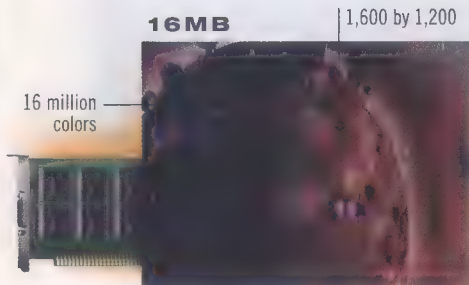
While a 4MB graphics card displays a maximum 3-D resolution of 800 by 600, a 16MB card displays 1,600 by 1,200 resolution.

Color Depth

More memory gives you more colors in an image—16.7 million instead of 65,000.

Effects

Today's games rely on graphics techniques like trilinear filtering to create a more realistic picture. Additional memory lets a card smooth edges, add shadows, and create fog.



For under \$1,000 you'd expect
an entry level 15" LCD monitor.

Sorry to disappoint you.



MultiSync
by NEC

The new MultiSync® LCD1500M monitor surprises in many ways. Along with our famed reliability, you'll find astounding image quality and a robust multimedia speaker system. There's even a four-port USB hub that lets you hot swap peripherals with true plug and play ease. If you're looking for an LCD monitor, check out the model with high-end performance. The MultiSync LCD1500M monitor.

NEC
NEC TECHNOLOGIES, INC.




NEC Technologies

Learn about our complete line of MultiSync LCD monitors. Call (800) NEC-INFO, or visit www.nectech.com. Expect more. Experience more.

Infolink 221 at: www.pccomputing.com/infolink

By Rich Schwerin

TRENDS

Plugged In Is your PC connected to the Internet? If not, you're officially in the minority. According to a recent study from ZD Market Intelligence, more than 60 million PCs—some 53 percent of the worldwide total—are connected to the Net. And what are you doing online? The most popular activity by far is e-mail.

EDITOR'S **A-List** PICKS

HIGH-SPEED FAX/MODEM

3Com U.S. Robotics 56K Faxmodem While you're waiting for cable or DSL you still need a fast, reliable connection. Get the best V.90 modem money can buy with the U.S. Robotics 56K Faxmodem. It gives you speed you can count on, plus handy software for painless online connections. And don't forget 3Com's excellent service and support.

\$149 for external, est. street price / 3Com Corp. / (800) 638-3266

HIGH-SPEED INTERNET ACCESS

Hughes Network Systems DirecDuo With high-grade costs and low-grade programming, why not give your cable TV the boot? Get your own satellite—and a superfast Web connection. The DirecDuo is a two-in-one satellite wonder, with 400Kbps downstream Web access for your PC and hundreds of satellite TV channels for your boob tube. You'll never leave home again.

\$549 est. street price, plus monthly Internet and TV service charges; installation, activation, and rebates vary / Hughes Network Systems / (800) 347-3272

DESKTOP VIDEOCONFERENCING

PictureTel Live200 Desktop Videoconferencing System Beat those business-travel blues with the Live200 Desktop Videoconferencing System. This excellent bundle is your best choice for *almost* being there, thanks to your business's ISDN connection. Its foolproof setup and excellent audio and video quality will prove you aren't giving up a thing with electronic meetings.

\$1,295 est. street price / PictureTel Corp. / (800) 716-6000

Now NETWORK ADAPTER

3Com OfficeConnect Fast Ethernet NIC 3CSOHO100-TX Link your desktop to the network without hassles, headaches, or high costs thanks to 3Com's new OfficeConnect. At just \$69, this 10/100Mbps hybrid Ethernet adapter is versatile: Pop it into your Win95, Win98, or NT systems. And its handy Network Assistant CD-ROM shows you everything you need to know about small-office networking.

\$69 est. street price / 3Com Corp. / (800) 638-3266

PC CARD MODEM

3Com Megahertz 56K Global Modem If you're not connecting with 3Com's Megahertz 56K Global Modem, you're sitting in the slow lane. Slide the PC Card into your notebook for fast, reliable connections. And don't sweat that digital PBX line in your hotel—the Global Modem includes a Digital Line Guard that will protect your PC from getting fried.

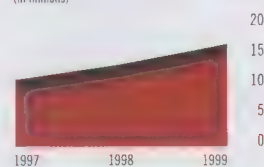
\$269 est. street price / 3Com Corp. / (800) 638-3266

PC CARD NETWORK ADAPTER

Xircom RealPort CardBus Ethernet 10/100+Modem 56 If you have just one PC Card slot on your notebook, choose the Xircom RealPort. It combines a V.90 56Kbps modem and a 10/100Mbps Ethernet adapter in one slim package. And Xircom builds the connectors right into the card—kiss those lost, broken, and forgotten dongles goodbye forever.

\$399 est. street price / Xircom / (800) 438-4526

Stay Put Stop flying coach to Duluth, and host that sales meeting from the comfort of your own office with a videoconferencing setup. This year some 16 million meetings will occur over a LAN or the Internet instead of in person. Your initial investment—whether on a low-end system from 3Com that works over phone lines or a top-of-the-line ISDN suite from PictureTel—pays for itself in increased productivity, lower T&E costs, and employee goodwill. About the only thing you give up are those frequent-flier miles.

Electronic Meetings
(in millions)

SOURCE: TELESAN PUBLISHING

DSL at Work, Cable at Home Your analog modem isn't dead yet. But soon you'll trade it in for fast cable or DSL. While cable will have a bigger share of the overall market by 2000, DSL will dominate in business. Cable will remain the winner for home use.

Internet Connections
(in millions of subscribers by 2000)

SOURCE: FORWARD CONCEPTS

NETWORK HUB/ROUTER

Ramp Networks WebRamp 300e You need to hook everyone in your small workgroup to the Internet, but you don't have a lot of time or money. Problem solved: Get the WebRamp 300e, an all-in-one Ethernet router and four-port hub. Plus the WebRamp includes basic firewall protection to keep your own site safe from outsiders.

\$499 est. street price / Ramp Networks / (888) 726-7638



**3Com
Megahertz
56K Global
Modem**



GRAPHICS BY
rage



ATI RAGE 128 Is Born.
Graphics Scream.

It's the fastest 32-bit color
graphics technology ever.
It's the new breed of speed.

Introducing ATI RAGE 128 graphics technology. From the world leader in PC graphics, its heart is in the new ATI RAGE 128 next-generation 3D accelerator, the revolutionary new graphics chip with the fastest performance, no matter what the measure - 3D, 2D or DVD video. It combines a true 128-bit graphics engine and up to 32MB of memory with 32-bit true-color rendering and ATI's new SuperScalar Rendering. So you get blistering 3D and 2D performance and highly detailed display of advanced texturing, lighting and shading effects. And it's the only graphics chip you can buy that delivers



exquisite DVD video from hardware DVD decoding. Look for new ATI RAGE 128 technology in the newest systems from the world's top PC makers, and in the new ATI RAGE 128 graphics upgrades available at computer retailers everywhere. Nothing is faster.



True 128-Bit Graphics • 32-bit Color • Up To 32MB • SuperScalar Rendering • Hardware DVD



RAGE FURY

The Ultimate 3D Game Card

More advanced features. True-color graphics. More speed, realism and head-bounding 3D excitement than you get from any other graphics board.

- RAGE 128 GL 128-bit graphics engine and 128-bit memory interface for incredibly fast 3D and 2D graphics
- 32MB of memory handle massive graphics textures and deliver outstanding performance
- Fast 16-bit and 32-bit true-color rendering
- Advanced 3D architecture with Single Pass Multi-Texturing
- Full 3D acceleration in all modes, all color depths, and all resolutions up to 1920x1200
- Full OpenGL, DirectX 6.0 and Direct 3D acceleration
- Hardware DVD for full-frame, full-screen DVD playback
- TV-Out for a big-screen gaming experience

XPRT 128

The Graphics and DVD Powerhouse

ATI brings striking graphics performance and DVD video to home, small office and home-based business PCs. It's the best all-around graphics upgrade you can buy.

- RAGE 128 GL 128-bit graphics engine and 128-bit memory interface for incredibly fast 3D and 2D graphics
- 16MB of memory radically improves appearance
- Hardware DVD for full-frame, full-screen DVD playback to save the added expense and hassle of installing a separate MPEG-2 decoder
- Full OpenGL, DirectX and Direct 3D acceleration
- Advanced 3D architecture with Single Pass Multi-Texturing
- Full 3D acceleration in all modes, all color depths, and all resolutions up to 1600x1200

ALL-IN-WONDER 128

The Ultimate Multimedia Upgrade

It's the RAGE 128-based addition to the number one all-in-one TV graphics and video upgrade. In fact, there's practically nothing you can't do from running the very latest games and applications, to watching TV and capturing and replaying video.

- A 128-bit graphics engine and 128-bit memory interface for incredibly fast 3D and 2D graphics
- Up to 32MB of memory to handle massive graphics textures and deliver outstanding performance
- Advanced TV tuner functions including instant replay, digital VCR with video compression and video capture
- Enables Web TV for Windows 98
- TV-Out for a big-screen gaming experience
- Hardware DVD for full-frame, full-screen DVD playback

For complete product specifications, industry reviews and where to buy, check out www.atitech.com.



The New Breed of Speed.



© Copyright 1999, ATI Technologies Inc. ATI, RAGE 128 VR, RAGE 128 GL, RAGE FURY, All-in-Wonder and XPRT 128 are trademarks and/or registered trademarks of ATI Technologies Inc. Features, performance and specifications may vary by operating environment and are subject to change without notice. Products may not be exactly as shown. * All tests were done running Quake 3.0 on a P4 450MHz, 98, DirectX 6.0, ATI RAGE FURY, STB Velocity 4400, Creative 3D Blaster Velocity 4400, Diamond Monster Fusion were tested using drivers 4.11.6031, 4.10.01.2.04-01.37, 4.10.01.0094 (2.16), 4.10.01.0206 respectively.

By Leslie Ayers

TRENDS

Free Time Sure, free Web-based services like e-mail and calendars are handy. But they force you to log on to different Web sites and clumsily transfer data between accounts. Not anymore. Now you can run your day from a single browser window thanks to Jump (www.jump.com). It makes e-mail, calendar, and contact services play nice—and adds custom Internet content you choose.

EDITOR'S **A-List** PICKS

BUSINESS APPLICATION SUITE

Microsoft Office 97 Professional It's better than hiring a new assistant. Cheaper too—by about \$35,000. And that's just the first year. Office 97 Professional offers the top word processor, spreadsheet, database, presentation package, information manager, and e-mail app. Stay tuned for Office 2000, which promises even more Web smarts plus artificial intelligence.

\$599 est. street price / Microsoft Corp. / (800) 426-9400

PERSONAL FINANCE

Intuit Quicken Deluxe 99 Here's one investment you can bank on. The latest version of Intuit's skilled money manager keeps you in the black—or helps you get there. Quicken Deluxe 99's an adviser, financial analyst, and personal bookkeeper. Planning a major purchase, investment, even a wedding? Handy What-If scenarios let you prepare for any contingency.

\$60 list price / Intuit / (800) 446-8848

ACCOUNTING

Intuit QuickBooks Pro 6.0 Put down that copy of *Small Business Accounting for Dummies*. With QuickBooks Pro 6.0 you start managing your company's finances as soon as you start the program. Network support means you can let your employees into selected portions of your books. Really simplify your life with Intuit's new online service, which makes payroll a snap.

\$219 est. street price / Intuit / (800) 446-8848

PROJECT MANAGER

Microsoft Project 98 Don't be a statistic. The cost of failed IT projects in 1998 was \$75 billion, according to the Standish Group's 1998 Chaos Report. Project 98 helps make sure it doesn't happen to you. Its wizards will have you up and running quickly.

\$499 est. street price / Microsoft Corp. / (800) 426-9400

HOW IT WORKS **SPEECH CONTROL**

In the future, all computers will listen and take orders. Today, though, the best voice recognition software lets you control your computer simply by telling it what to do.

1. Parse Your voice command is broken down into discrete units.

sa ve doc u ment

Save Document
Search Text
Open
Print

2. Translate The program translates what you said into one of the standard commands that works with the active app.

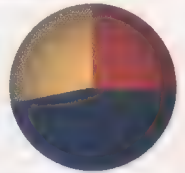
3. Script Your command becomes a Visual Basic script, which makes the app do your bidding.

Saving

What Deadlines? Almost half the projects IT departments took on last year missed deadlines or blew past their budgets, and more than a quarter of those projects failed outright. Amazingly, though, that's an improvement since the Standish Group's 1994 Chaos Report. The Standish Group's Jim Johnson says the improvement is a result of taking on smaller projects, not better project management software.

IS Report Card
(percentage of projects undertaken)

■ On Time/
On Budget
■ Late/
Over Budget
■ Failed



SOURCE: STANDISH GROUP CHAOS REPORT 1998

PERSONAL INFORMATION MANAGER

Microsoft Outlook 98 Microsoft Office users: What can you expect for free? With Outlook 98, a lot. A flexible e-mail app, contact manager, and scheduler, it lets you start your day from a single screen. With its Rules Wizard you can customize how your messages reach you—and set up spam filters too.

\$109 list price; free with Microsoft Office / Microsoft Corp. / (800) 426-9400

CONTACT MANAGER

Symantec Act 4.0 Thank goodness Act is always on the job. It keeps track of every detail—contacts, appointments, to-do's, client communications, and more. Wondering how the Internet can boost your annual sales? Act's Web integration lets you capture online leads.

\$200 est. street price / Symantec / (800) 441-7234

VOICE RECOGNITION SOFTWARE

Lernout & Hauspie Voice Xpress Professional Browbeat your PC. Make it your slave. You can—with voice commands alone—thanks to Voice Xpress Professional. Dictate into any Microsoft Office 97 application, control formatting, save, print, and more. Impressive accuracy and flexible command options make Voice Xpress an excellent replacement for keyboard and mouse.

\$150 est. street price / Lernout & Hauspie / (888) 537-6688

COLLABORATION AND E-MAIL

Novell GroupWise 5.5 Make your e-mail app work for you. More than a basic mail manager, GroupWise 5.5 lets you create a virtual office so team members can stay on top of assignments and workflow no matter where they are.

Starts at \$718 est. street price / Novell / (800) 453-1267

CD/DVD TITLE

Red Orb Entertainment Riven: The Sequel to Myst

You know that old adage about all work and no play? We know it too—and Riven is the remedy. It proves that you don't need explosions, automatic weapons, or bikini-clad babes to love a PC game. Riven's luxurious graphics, riveting story, and mind-twisting puzzles are even more entertaining than those in the original game.

\$40 for CD, \$40 for DVD, list prices / Mindscape's Red Orb Entertainment / (800) 548-1798

By Liesl La Grange Noble

TRENDS

Image Editing Anywhere You love your handheld computer because it lets you work anywhere. Here's one more reason it's so handy: Sierra Imaging's Windows CE version of its Image Expert software. Now you can take a picture with your digital camera, edit or annotate it on your PDA, and dispatch it via e-mail. Who needs to be in the office?

EDITOR'S A-List PICKS

BUSINESS GRAPHICS

Microsoft PhotoDraw 2000 In a perfect world we'd all be able to hire a fancy design firm to create our graphics. Well, at least there's Microsoft PhotoDraw 2000. It lets anyone craft professional-looking promotional materials for a lot cheaper than a design firm. A photo editor and a graphics illustrator in one, it's loaded with tons of cool effects, templates, and filters.

\$149 est. street price / Microsoft Corp. / (800) 426-9400

PROFESSIONAL DESKTOP PUBLISHING

Adobe PageMaker 6.5 Professional publishing never had it so good. PageMaker 6.5 gives you all the tools you need to make slick-looking documents for print or the Web. Best of all, it works seamlessly with your other favorite graphic apps from Adobe, like Illustrator, Premiere, and Photoshop.

\$895 list price / Adobe Systems / (800) 422-3623

PERSONAL DESKTOP PUBLISHER

Microsoft Publisher 98 Even if you don't have an artistic bone in your body, you can create top-notch newsletters, letterhead, business cards, promotional materials, and more. It's possible thanks to Publisher's foolproof wizards and huge selection of customizable templates, graphics, and clip art.

\$100 est. street price / Microsoft Corp. / (800) 426-9400

ILLUSTRATION AND DESIGN

Adobe Illustrator 8.0 Even creative geniuses need a little help now and then. And Illustrator 8.0 is just the thing, with special effects like Scatter, which lets you stroke on everything from lady bugs to flowers. Use the program on its own or work seamlessly with other Adobe apps.

\$375 est. street price / Adobe Systems / (800) 492-3623

BUYER'S CHECKLIST PUBLISHING

Ready to start your own printing press? First you must choose between a personal and professional desktop publisher. Here's what you need for the job.

Goal A simple newsletter, letterhead, or flyer.

Solution A personal publisher like Microsoft Publisher 98 with ready-made templates and a built-in clip art library.

Goal Lots of text in complex layouts, like those that include columns, such as for a book or a multipage brochure.

Solution A professional-level package like Adobe PageMaker, which has advanced text manipulation and lets you create style sheets that you can reuse for future projects.

Goal Slick-looking results—fast.

Solution A personal publisher like Microsoft Publisher 98 with wizards to guide you through entire projects in minutes.

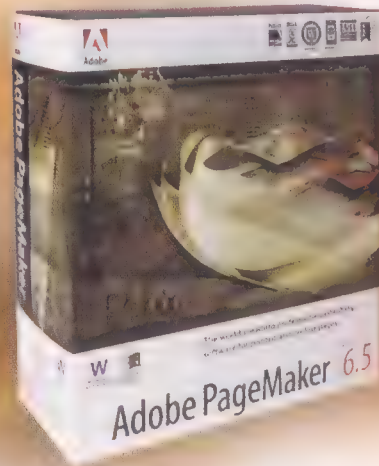
Do It Yourself What's on your home PC? If you're like most people, you probably have a consumer photo-editing package like MGI PhotoSuite II alongside your money manager and word processor. Plummeting prices for digital

Photo Software
(in millions of consumer units sold)



cameras and scanners mean more and more people are creating digital images and need software to dress them up, share them with friends and family, and add them to cards and T-shirts.

Adobe
PageMaker 6.5



PROFESSIONAL IMAGE EDITOR

Adobe Photoshop 5.0 Real professionals won't waste time with anything else. And now the top image editor gets even better. The latest version brings improved color management and new features aimed at smoother workflow. As always, it works with all the great Photoshop plug-ins available in stores and on the Web.

\$649 est. street price / Adobe Systems / (800) 492-3623

PERSONAL IMAGE EDITOR

MGI PhotoSuite II This isn't your average image editor. It's loaded with professional-level effects and editing tools, yet it's still incredibly easy to use. PhotoSuite II makes working with digital images easy thanks to its Web hooks, which grab pictures off the Web for editing. Best of all, you'll love its \$49 price tag.

\$50 est. street price / MGI / (888) 644-7638

VIDEO EDITING TOOL

Adobe Premiere 5.0 If you're serious about editing digital video, then you need a serious piece of video editing software. And none will do better than Premiere 5.0. An improved interface makes it easier than ever to get to all of Premiere's powerful features and create high-quality videos.

\$599 est. street price / Adobe Systems / (888) 724-4507

*Estimated reseller price for models 390/20U-70U. Actual prices may vary. mhz denotes microprocessor internal clock speed only; other factors may also affect application performance. gb=1 billion bytes for HDD capacity. PC's referred to in this ad include an operating system. IBM product names are trademarks of International Business Machines Corporation. Intel Inside, Pentium and MMX are registered trademarks of Intel Corporation. ©1999 IBM Corp. All rights reserved.



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IBM®

price

power

specs

staple

@e-business tools

ThinkPad® 390

\$1,699 to
\$2,399*

mobile Pentium® w/MMX™
technology or Pentium II
processor 233 to 266 mhz

3.2/4.3gb hard drive, 32/64mb memory,
integrated floppy/cd, 12.1" or 14.1" TFT
display, optional 10/100 EtherJet card

ThinkPad 390. The most affordable ThinkPad. All of
the essentials, ready for company-wide distribution.
www.ibm.com/thinkpad or 800 426 7255, ext. 5040



Nine Months and Counting Is your business ready for the year 2000? Two-digit year dates could wreak havoc on your system come 01/01/00. Don't take any chances; arm yourself with Symantec Norton 2000 (\$50). It's an easy-to-use analysis tool that tests your system BIOS and applications for any problems, then shows you how to fix them or does the work for you automatically.

EDITOR'S A-List PICKS

SYSTEM UTILITY

Symantec Norton SystemWorks First it happened with business apps; now it's hit utilities. Gone are the days of individual programs to help you fine-tune and monitor your PC. Norton SystemWorks gives you everything you could possibly need in one box: Norton Utilities, Norton AntiVirus, and Norton CrashGuard. Other extras: a free bonus pack that includes Remove-It 98, Norton Mobile Essentials, Visual Page, WinFax Basic Edition, and pcAnywhere Express. Best of all, Norton SystemWorks costs about the same as many stand-alone programs.

\$100 est. street price / Symantec / (800) 441-7234

NETWORK UTILITY

Intel LANdesk Management Suite 6.1 You're a businessperson, not a networking geek. And with LANdesk you don't have to be. It lets you easily manage, maintain, and protect your network, plus distribute and monitor software. Even better, you can handle all those chores remotely—from any PC on the network or via a dial-in connection.

Starts at \$62 per desktop in quantities of 100, list price / Intel / (800) 538-3373

ANTIVIRUS SOFTWARE

Network Associates McAfee VirusScan 4.0 Inoculate your PC from nasty computer viruses with McAfee's bulletproof antivirus tool, VirusScan 4.0. With quick scanning and smart online updates, VirusScan protects all your files, including e-mail attachments, Internet downloads, and shared files.

\$49 est. street price / Network Associates / (800) 764-3337

OCR

Caere OmniPage Pro 9.0 Dig out from under that mound of paper on your desk with OmniPage Pro. The latest version gives you improved accuracy and is easier to use than before. OmniPage Pro 9.0 even handles difficult-to-scan documents, such as those with tiny text and reverse type.

\$499 est. street price / Caere / (800) 736-5735

DOCUMENT MANAGER

ScanSoft Pagsis Pro 2.0 Get one step closer to the paperless office with Pagsis Pro 2.0. No other document manager makes it easier to convert those stacks of files on your desk into electronic image files for smart indexing. Even the most complex documents—tables, photos, you name it—are no match for Pagsis Pro.

\$99 est. street price / ScanSoft, a Xerox Company / (800) 842-0024

PRIVACY AND SECURITY

Network Associates PGP Personal Privacy 6.0

Your company owns your e-mail, but you can still keep your messages private with bulletproof encryption from Network Associates. PGP Personal Privacy 6.0 frustrates prying eyes and stops snoopers dead in their tracks. Its two-key design locks up your electronic correspondence and desktop files with ease.

\$29 est. street price / Network Associates / (800) 764-3337

Final Countdown If you're a Y2K consultant, this is the year you'll make millions, at least if projections from IntelliQuest prove true.

According to the company's latest survey, 40 percent of respondents will spend more or significantly more for a range of technology products and services this year than last year. Why? At least half say it's because of Y2K worries.

Tech Spending

(percentage to be spent in 1999)

■ More Than '98
■ Same as '98
■ Less Than '98



SOURCE: INTELLIQUEST

APPLICATION DEVELOPMENT

Microsoft Visual Studio 6.0 Enterprise Edition

Databases, inventory tracking, people management—whatever the job, Visual Studio 6.0 is the only development tool you'll ever need. In a single package you get Visual Basic, Visual FoxPro, Visual J++, Visual C++, Visual InterDev, and Visual SourceSafe.

\$1,619 est. street price / Microsoft Corp. / (800) 621-7930

MULTIMEDIA DEVELOPMENT

Macromedia Director 7 Shockwave Internet Studio Why do you need a multimedia development tool?

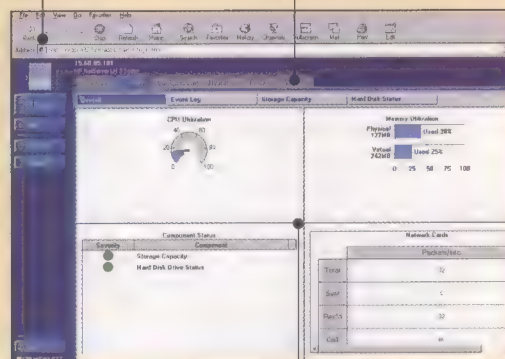
Probably not for CDs. If you're like most, you're pulling content together for the Web. Director 7 Shockwave Internet Studio gives you everything you need to jolt your site to life with animation, video, audio, and all things multimedia. And there's no easier way to automatically convert content to Shockwave.

\$999 est. street price / Macromedia / (800) 457-1774

BUYER'S CHECKLIST LAN TOOLS

Web-Based Web-based LAN managers let you manage your network remotely from anywhere on the Internet.

Standards Support Look for support for key network protocols, including SNMP and DMI.



Integration Choose a product that also works with the management software that comes with your network server.



*Estimated reseller price for models 560/90U-BIU. Actual prices may vary. Actual weight/thinness may vary due to vendor components, manufacturing process and options. Includes battery (and travel cover on ThinkPad 600 models) and excludes external diskette, cd/dvd drives, if applicable. mhz denotes microprocessor internal clock speed only; other factors may also affect application performance. gb=1 billion bytes for HDD capacity. PCs referred to in this ad include an operating system. IBM product names are trademarks of International Business Machines Corporation. Intel Inside and Pentium are registered trademarks of Intel Corporation. ©1999 IBM Corp. All rights reserved.

IBM



thinkpad.road trip

ThinkPad® 560

price	mobility	power	bytes	road
\$2,099 to \$2,699*	4.2 lbs ¹ 1.2" thin	mobile Pentium® II processor 233 to 300 mhz	4.0 or 6.4gb hard drive 32 or 64mb memory option: external cd	ThinkPad 560. The lightest, thinnest ThinkPad. For the road, for thousands of miles, for the humane treatment of businesspeople. www.ibm.com/thinkpad or 800 426 7255, ext. 5039.

@e-business tools

TRENDS

Internet Megamerger With America Online's \$4.2 billion buyout of Netscape

Communications, the Net has a new monster—just look at the numbers. According to Media Metrix, the AOL site reaches some 30 million visitors. Add that to the 21 million visitors to Netscape's Netcenter, and you've got the biggest single Internet media presence.

EDITOR'S **A-List** PICKS

WEB BROWSER

Microsoft Internet Explorer 5.0 The fastest, most flexible browser you can find is still Internet Explorer 5.0. With dozens of usability improvements—including the death of the old Channels bar—IE 5.0 sports a slick, reorganized interface that makes everyday browsing tasks easy. It's great for mobile users too. The downside? You'd better have at least 100MB of disk space for a full installation.

Free / Microsoft Corp. / (800) 426-9400

WEB/INTERNET UTILITY

Infoseek Express Turn your endless online searches into quick success with this must-have metasearch tool from Infoseek. Yours for a free download, Infoseek Express is the best way to query more than 300 search engines simultaneously. And the results are unbeatable: fast, accurate hits in a convenient prioritized list.

Free / Infoseek / (800) 781-4636

SEARCH ENGINE

Lycos Network Hotbot More than a search engine, Hotbot has joined the portal craze. But just because Hotbot's trendy doesn't mean it's lost its edge. It's still the best way to search the Web, giving you fast, accurate Web searches with options to find images, audio, video, Java applets—you name it.

Free / Lycos Network / www.hotbot.com

TOP 5 STREAMING MEDIA SITES

So you've got a copy of RealNetworks' RealPlayer G2, and you're ready to enjoy streaming audio and video on your PC. Where do you start? Right here—connect to all the best sites at www.pccomputing.com/getnow.

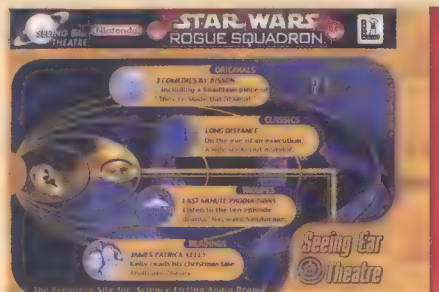
Broadcast.com Links to scores of streaming media sites, including news, entertainment, and sports.

CBS SportsLine Working late? Now you'll never miss the game. Plus: regular talk shows you won't want to miss.

National Public Radio Online Take your pick of NPR's news, entertainment, and cultural programs.

Real G2 Showcase One-stop shopping right from the source: music, entertainment, education, and more.

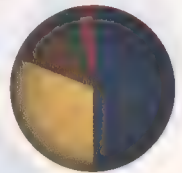
Sci-Fi Channel A must-visit site for science-fiction fanatics.

**Next Big Thing** No more HTML headaches?

That's what many Web companies would have you believe. Enter Extensible Markup Language (XML), which works with HTML to create a standard way to view Web content across different platforms. But according to a recent Netroscope survey of Web professionals, at least 50 percent say they haven't even started using XML, let alone evaluating it.

XML Plans
(percentage of users)

- None
- Evaluating
- Pilot Testing
- Under Development
- In Use



SOURCE: NETROSCOPE

WEB PUBLISHER

Microsoft FrontPage 2000 How do you build your own Web site without headaches and hassles? With FrontPage, of course. Its handholding wizards, automatic templates, and top-notch help make it easy to get up and running. And don't sweat the code; FrontPage 2000 spits out clean HTML.

\$149 est. street price / Microsoft Corp. / (800) 426-9400

WEB DEVELOPMENT

RealNetworks Interactive Bundle Stop making excuses. It's easy to add streaming audio and video to your Web site. RealNetworks Interactive Bundle gives you a trio of tools to make your site come alive. The bundle includes Media Palette for content conversion, T.A.G. for interactivity, and RealPublisher for adding streaming audio to your site quickly.

\$249 est. street price / RealNetworks / (888) 768-3248

WEB SERVER SOFTWARE

Microsoft Internet Information Server 4.0 Waiting for Windows 2000? Stop holding your breath, and get Windows NT 4.0—plus the best Web server, the included Internet Information Server 4.0. It boasts one-button site setup, easy management, and support for Active Server Pages. And like the popular Apache, it's free for NT Server users. Unlike Apache, though, you don't have to wrestle with Unix.

Free with Windows NT 4.0 / Microsoft Corp. / (800) 426-9400

SITE MANAGEMENT

Marketwave Hit List Professional 4.0 Don't dawdle with customer satisfaction surveys or site guestbooks—get all the analysis you need with Hit List Professional 4.0. It tells you exactly who's visiting your site, where they're going, when, and why they're coming back (or not coming back) for more. Hit List's reports make quick work of analyzing traffic patterns so you're always ready to revamp your site.

\$295 est. street price / Marketwave / (800) 521-8176



*Estimated reseller price for models 600/35U-5AU. Actual prices may vary. †Actual weight/thinness may vary due to vendor components, manufacturing process and options. Includes battery (and travel cover on ThinkPad 600 models) and excludes external diskette, cd/dvd drives, if applicable. mhz denotes microprocessor internal clock speed only. other factors may also affect application performance. gb=1 billion bytes for HDD capacity. PCs referred to in this ad include an operating system. IBM product names are trademarks of International Business Machines Corporation. Intel Inside and Pentium are registered trademarks of Intel Corporation. © 1999 IBM Corp. All rights reserved.

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IBM



ThinkPad® 600

price

\$2,199 to
\$4,099*

power

mobile Pentium® II
processor
266 to 366 mhz

bytes

32 or 64gb hard drive
32 or 64mb memory

media

12.1" or 13.3" TFT display
cd or dvd, SRS 3-D sound
option: port replicator

design

ThinkPad 600. Light weight and high
performance, in a 4.9 lb design statement
a mere 1.4" thin! www.ibm.com/thinkpad
or call 800 426 7255, ext. 5038

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By Leslie Ayers

TECHNOLOGY

This Way to the Web Doing business on the Web begs a sticky question: Where to start? ClearCommerce can help. It not only offers e-commerce services like fraud screening, payment processing, and fulfillment, it also provides a free booklet, the e-guide, with helpful checklists to walk you through the basics of setting up shop online. Download it at www.clearcommerce.com.

EDITOR'S **A-List** PICKS

FINANCIAL SERVICE

Intuit Quicken.com Anytime is a good time to put your financial house in order. And Quicken.com's free information and analysis of investments, retirement plans, insurance, and more make it easy. Is your home a money pit? Get the latest mortgage rates, and find out if refinancing makes sense for you.

Free / Quicken / www.quicken.com

BANKING SERVICE

Intuit Quicken Deluxe 99 Are you on the Web or running Quicken 99? Who cares? All you need to know is that you're using the best tool for online banking—not to mention managing your cash flow. It works with most of the top banking services, and it makes the most of your Web connection by simultaneously uploading account bills as you download account info.

\$60 est. street price / Intuit / (800) 446-8848

COMMERCE SERVER

Microsoft Site Server 3.0 Commerce Edition

Today Main Street, tomorrow the world. It's not a pipe dream, thanks to Microsoft's excellent commerce suite. And it doesn't take a degree in computer science to set up: A wizard guides you every step of the way. If managing inventory is a must, add SQL Server (\$1,399).

\$3,499 est. street price / Microsoft Corp. / (800) 426-9400

COMMERCE SERVICE

Yahoo Store Once the money from your e-commerce site starts rolling in, you'll understand why they call it Yahoo. A fast, painless setup, flexible design options, and domain-name and search-engine registration make Yahoo Store worth every penny of its reasonable monthly fee. It even handles credit card and other electronic payments.

\$100 per month for up to 50 items / Yahoo Store / (408) 616-3801

NATIONAL INTERNET SERVICE PROVIDER

MindSpring Enterprises MindSpring Reliable dial-up connections, customer service reps who answer on the first ring, a

Web Scoop Sound

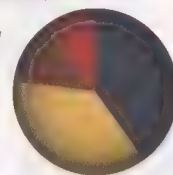
bites are here to stay.

Web users still get most of their news from television—a combined 76 percent. But almost half of those who get their news from the Internet (12 percent

overall) turn first to portal sites, and 40 percent stay current with the help of online services. The reason, according to Jupiter Communications, is that people want their news in easy-to-swallow snippets: The average time spent gathering news on the Web is 10 minutes or less.

Headline News
(percentage of news sources)

■ Broadcast TV
■ Cable TV
■ Internet
■ Radio and Newspaper



SOURCE: JUPITER COMMUNICATIONS/INFO

flexible array of options for home and business, including V.90 and cable access—MindSpring offers them all. And the Spaninator keeps your in-box junk-free. Looking to switch from AOL? MindSpring has a transition plan just for you.

\$14.95 per month for 20 hours, \$19.95 per month for unlimited access, \$25 setup fee / MindSpring Enterprises / (800) 719-4332

TRAVEL SERVICE

Biztravel.com Skip the pricey travel agents. For help planning business trips and vacations, look no further than Biztravel.com. Sign up for BizAlerts, which send you flight information via pager. Planning an event? BizTravel is at your service: EventSource helps you search and book sites and provides a list of dates for the best rates.

Free / Biztravel.com / (800) 835-6483

SHOPPING SERVICE

Dell Direct Dell knows you don't like the runaround. It was one of the first PC manufacturers to make buying built-to-order PCs direct worthwhile—and it's still the best. If you don't have a lot of money to spend, Dell offers two tempting options: refurbished systems or an installment payment plan for new PCs.

Free / Dell Computer Corp. / www.dell.com

HOW IT WORKS SECURE ELECTRONIC TRANSACTIONS

The Secure Electronic Transaction (SET) standard offers the safest way to make credit card purchases on the Web. Best of all, no one ever sees your account number.

1. Purchase A secure electronic wallet stores credit card information and monitors all transactions.

2. Authorization

The computers encrypt and transfer all account data. Merchants can't peek at your number.

3. Approval The bank receives the encrypted info, authenticates it, and sends approval to the merchant—all in a few minutes or less.



ThinkPad® 770

price

\$3,799 to
\$5,099*

power

mobile Pentium® II
processor 266 to 366 mhz
8.1gb or 14.1gb hard drive
64 or 128mb memory

media

13.7" or 14.1" TFT display
1280 x 1024 resolution†
hot-swappable dvd drive
option: SmartCard security

show

ThinkPad 770. Turn it way up. Maximum power, from raw performance to full multimedia capabilities to Windows NT® Workstation support. www.ibm.com/thinkpad or call 800 426 7255, ext. 5035.

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IBM



thinkpad.show time



*Estimated reseller price for models 770/72U-8AU. Actual prices may vary. †Available only on model 770/8AU. mhz denotes microprocessor internal clock speed only; other factors may also affect application performance. gb=1 billion bytes for HDD capacity. PCs referred to in this ad include an operating system. IBM product names are trademarks of International Business Machines Corporation. Intel Inside and Pentium are registered trademarks of Intel Corporation. © 1999 IBM Corp. All rights reserved.

SONY



By all means, think **outside** the box. Just put it **all** back when you're done.

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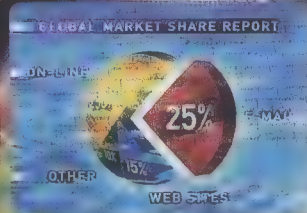
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PICTURE
START

Introducing the HiFD™ system by Sony.
The new floppy disk and drive that let
possibilities have priority over limits.



Imagine a single HiFD disk with room for
140 of the floppies you're using today. That's a
lot of pie charts, presentations, graphics
or anything else you'd like to download or save.

Now imagine a drive that plays back at near hard drive
speeds and still works with your old floppies.
Amazing? Let's just say nothing else can do this and say
Sony at the same time.



DO WHAT YOU WANT TO DO.™

By Gordon Bass



Unwired Later this year look for computers, peripherals, and consumer electronics that conform to the new HomeRF Shared Wireless Access Protocol (SWAP). Your home, PCs, telephones, entertainment system, and more will share data on a single network—without the rat's nest and expense of additional wiring.

EDITOR'S **A-List** PICKS**DIGITAL COPIER**

Xerox XD100 You've got better things to do with your time than wait in line at the copier. The solution? Affordable digital models let you copy directly from your desktop—which also means fewer paper jams. The Xerox XD100 hooks up to your PC or network and kicks out 10 crisp copies per minute.

\$750 est. street price / Xerox / (800) 832-6979

MULTIFUNCTION FAX/COPIER/PRINTER

Hewlett-Packard LaserJet 3100 You need a printer, copier, fax machine, and scanner—or do you? Our favorite MFD handles all of their chores with finesse, giving you razor-sharp output for one low price. And the excellent JetSuite Pro software provides one-click access to everything you need.

\$699 est. street price / Hewlett-Packard / (800) 752-0900

DIGITAL FAX

Panasonic Panafax UF-770i Is a digital fax machine really that much better? You bet. Use it to send traditional faxes, or save a bundle and route your faxes over the Internet for free. It's simple: The Panafax UF-770i automatically converts faxes to e-mail attachments. Short on space? The Panafax UF-770i doubles as a network printer and scanner.

\$3,695 est. street price / Panasonic Office Products / (800) 742-8086

SMALL-BUSINESS NETWORK

Tut Systems HomeRun Setting up a network can be less painful than giving blood—if you have HomeRun. Just plug your PCs into your existing phone lines for up to 1Mbps throughput. You can still talk on the phone at the same time. Look for new HomeRun-based networking kits from 3Com, Intel, and other companies soon.

\$199 for HR1000 PCI NIC, \$249 for HR1000T, est. street prices / Tut Systems / (800) 998-4888

BUYER'S CHECKLIST**GPS**

Voice Control To use the GPS in your car, make sure it has voice recognition for hands-off operation.

Map Support

Check that the GPS works with popular mapping programs, such as those from Rand McNally.

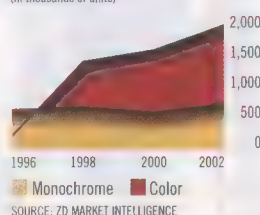


PC Hookup Look for a GPS that connects to your PC or handheld device so you can get map-based directions onscreen.

Colorful World Sure it's convenient to have a single space-saving machine that prints, faxes, copies, and scans. But even better, a multifunction device saves money. And when you get color output to make your documents stand out, so

much the better. Look for black-and-white MFDs to hold their own, while color sales take off in the next few years as color ink-jet and laser technology continues to improve and come down in price.

MFD Sales
(in thousands of units)

**TELEPHONY**

Centrepont Concero Switchboard Sound like a million bucks for less than \$500. With the Concero Switchboard, high-end PBX features like call forwarding, conference calling, voice mail, and on-hold music are within your reach. And setup is a breeze: Plug the Concero Switchboard into your phone jack, then plug your phone, fax machine, and PC into the Concero.

\$495 est. street price / Centrepont Technologies / (888) 332-9322

GLOBAL POSITIONING SYSTEM

TravRoute Door-to-Door CoPilot You don't ask for directions, and you wouldn't be caught dead with a map. But you're always in the right place at the right time, thanks to the Door-to-Door CoPilot. This in-car GPS navigation system plugs into your notebook, pinpoints your location, and gives you directions to any address in the country.

\$199 est. street price / TravRoute / (888) 872-8768

PAGER

Glenayre Wireless AccessLink II Think pagers are passé? The AccessLink II will make you reconsider: This 4.2-ounce wonder does more than alert you to your calls. You can send and receive e-mail using its virtual keyboard, import and export contact info via its infrared port, and easily organize everything with its folder-based interface.

\$195 est. street price / Glenayre Wireless / (800) 239-4735

CELL PHONE

Nokia n6190 Nokia keeps it simple with the slim Nokia n6190, a 5.9-ounce phone with an amazingly logical menu that makes it brain-dead easy to use. You get more than three hours of digitally clear talk time and a week of standby, plus a bevy of flat-out cool features—from caller ID and a phone directory to fax and e-mail capability. And the four built-in games are perfect time-killers.

\$199 est. street price / Nokia / (888) 665-4228

MOBILE OFFICE

Dragon NaturallySpeaking Mobile Maybe you like your dashboard plastered with yellow sticky notes, but we prefer Dragon's curvy, easy-to-use mobile dictation device for recording entrepreneurial brainstorming on the road. You can organize your speech files in four separate folders, a simple process thanks to a clear LCD menu and sensible button layout. Convert your ramblings to text back at the office with Dragon's first-rate speech recognition software.

\$249 est. street price / Dragon Systems / (800) 437-2466



WHO DO YOU DO IT FOR?



**Winner takes all.
New Rules. New Tools.™**





Free Training!
Micron University is
our gift to you - the
gift of knowledge.

WE'RE BUILDING POWERFUL USERS.

1. At Micron, we invest in you: Buy any new Micron system and you're automatically enrolled in Micron U. You'll have access to over one hundred free* online courses, seminars and tutorials for one full year on the hottest topics in computing, software and business today. Log in from any computer, 24 hours a day, 7 days a week. It's that easy.

MICRON U - HERE'S HOW IT WORKS.

2. Micron University offers two ways to learn: either with others in online, instructor-led classes, or on your own, at your own pace, with our self-study tutorials. Both offer comprehensive and flexible ways to become a more powerful PC user and better apply technology to your life.

THE FIRST 450MHz DESKTOP WITH ONE YEAR FREE* TRAINING INCLUDED.

The Critics Rave

New!



Millennia C400
Feb '99



Millennia 400 MAX
#1 Power Desktop
#1 Gaming System
Dec '98



Millennia 450 MAX
Best Buy
Nov '98



Millennia 400 DVD
Sep '98
Oct '98



Millennia 350
Sep '98
Oct '98



MILLENNIA® MAX
BREAKTHROUGH PRICE!
COMPLETE INTERNET-READY*
450MHz DESKTOP SYSTEM

\$1,999

- Intel® Pentium® II processor 450MHz
- 128MB 100MHz SDRAM
- 13GB Ultra ATA hard drive*
- 17" Micron display (15.9" display)
- 6X DVD-ROM drive
- 3Com USRobotics V.90 WinModem**
- Diamond Viper 550 TnT 16MB graphics
- Microsoft® Windows® 98
- Microsoft Office 97 Small Business Edition
- Free* Office 2000 upgrade
- #1 Ranked PC World Power Desktop
- 1-Year Free* Training at Micron University



Micron™ Millennia® - PC Magazine's Editors' Choice.

With the Millennia C400 just ranked PC Magazine's Editors' Choice (Feb '99), and the Millennia 450 ranked the #1 450MHz desktop by the editors of CNET and the #1 Power Desktop by the editors of PC World (Millennia 400 DVD • Oct '98, Millennia MAX 450 • Nov '98, Millennia MAX 400 • Dec '98), Micron's Millennia desktop product line continues a long tradition of industry-leading, award-winning performance. Perhaps that's why some of the most prominent power users around rely on Micron. But Micron offers far more than outstanding systems. We provide the new tools necessary to win in today's demanding new economy, the latest of which is called Micron University and it's free* with the purchase of any new Micron portable or desktop system.

Exclusive - Micron University - The Ultimate Learning Tool.

In our continuing effort to build not only powerful systems, but powerful users, we are proud to introduce Micron University. Offering over one hundred free* online, instructor-led classes, seminars and self-paced tutorials on the hottest topics in computing and business today, Micron University will turn any Micron owner into a highly trained power user. When you combine this powerful new tool with Micron's revolutionary MPower™ purchase program, offering qualified users no interest*** or payments for six months and our PowerXchange trade-in options, you get more than a great machine at a great price, you get a deal you probably won't find anywhere else. Call today to order your system or visit our Web site to find out more about Micron University.

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INSTRUCTOR-LED CLASSES

3. Learning takes place in a virtual classroom, which utilizes a powerful, yet simple-to-use, threaded message board. Each class is led by industry experts and professional trainers so you know you're being taught by the best. You'll get personalized attention and do it all from the keyboard of your computer, no matter where you are!

SELF-STUDY TUTORIALS

4. Learn on your own by following comprehensive tutorials, involving a series of learning exercises. After you master the skills and concepts of each tutorial, you can move on to the next lesson or choose a new topic. You can take tutorials to become a power user on the most popular software applications on the market including Microsoft Office and Windows NT® Workstation.

Award-Winning Complete Internet-Ready™ 450MHz Systems Starting at Just \$1,699



New!
Millennia® C400



New!
Millennia 450



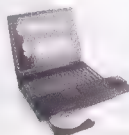
Millennia MAX 400



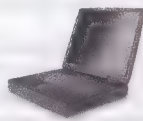
Millennia MAX 450

Model Name	Millennia® C400	Millennia 450	Millennia MAX 400	Millennia MAX 450
Processor	Intel® Celeron® processor 400MHz	Intel Pentium® II processor 450MHz	Intel Pentium II processor 400MHz	Intel Pentium II processor 450MHz
Cache	128KB internal L2 cache	512KB internal L2 cache	512KB internal L2 cache	512KB internal L2 cache
RAM	64MB SDRAM	64MB 100MHz SDRAM	128MB 100MHz SDRAM	128MB 100MHz SDRAM
Hard Drive	8.4GB Ultra ATA hard drive*	8.4GB Ultra ATA hard drive*	13GB Ultra ATA hard drive*	13GB Ultra ATA hard drive*
Monitor	17" Micron 700Vx monitor (15.9" display)	17" Micron 700Vx monitor (15.9" display)	17" Micron 700Vx monitor (15.9" display)	17" Micron 700Vx monitor (15.9" display)
DVD/CD-ROM	40X max speed CD-ROM drive	40X max speed CD-ROM drive	6X DVD-ROM drive (free upgrade from 4.8X DVD-ROM drive)	6X DVD-ROM drive (free upgrade from 4.8X DVD-ROM drive)
Modem	3Com US Robotics V.90 WinModem**	3Com US Robotics V.90 WinModem**	3Com US Robotics V.90 WinModem**	3Com US Robotics V.90 WinModem**
Graphics	nVidia Riva 128, 8MB SGRAM 3D 2X AGP graphics	nVidia Riva 128, 8MB SGRAM 3D 2X AGP graphics	16MB Diamond Viper 550 TriT 2X AGP graphics	16MB Diamond Viper 550 TriT 2X AGP graphics
Sound System	PCI 128-voice WaveTable sound Advent AV009 speakers	PCI 128-voice WaveTable sound Advent AV009 speakers	PCI 128-voice WaveTable sound Advent AV009 speakers	PCI 128-voice WaveTable sound Advent AV009 speakers
Warranty	5-year/3-year Micron Power limited warranty	5-year/3-year Micron Power limited warranty	5-year/3-year Micron Power limited warranty	5-year/3-year Micron Power limited warranty
Additional Storage	3.5" floppy drive	3.5" floppy drive	3.5" floppy drive	3.5" floppy drive
Training	1-year free! training at Micron U online	1-year free! training at Micron U online	1-year free! training at Micron U online	1-year free! training at Micron U online
Factory Direct Price	\$1,299 \$46/mo. Business, Lease 36 mos.**	\$1,699 \$59/mo. Business, Lease 36 mos.**	\$1,799 \$63/mo. Business, Lease 36 mos.**	\$1,999 \$70/mo. Business, Lease 36 mos.**
Order Code:	50008	50003	40014	40010

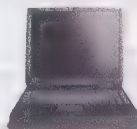
PCWorld, "Best Buy," April '98"
Replace your desktop with the Micron Transport TREK™



TREK™ 266



TREK™ 300



TREK™ 333 New!



New!
TREK™ 366

Model Name	TREK™ 266	TREK™ 300	TREK™ 333 New!	TREK™ 366
Processor	Intel Pentium II processor 266MHz	Intel Pentium II processor 300MHz	Intel Pentium II processor 333MHz	Intel Pentium II processor 366MHz
Cache	512KB L2 pipeline burst cache	512KB L2 pipeline burst cache	256KB L1 on die cache	256KB L1 on die cache
RAM	32MB SDRAM	32MB SDRAM	64MB SDRAM	64MB SDRAM
Hard Drive	3.2GB hard disk drive (removable)*	4GB hard disk drive (removable)*	4GB hard disk drive (removable)*	4GB hard disk drive (removable)*
Monitor	12.1" SVGA TFT display	13.3" XGA TFT display	14.1" XGA TFT display	14.1" XGA TFT display
CD-ROM	24X CD-ROM drive (dedicated bay)	24X CD-ROM drive (dedicated bay)	24X CD-ROM drive (dedicated bay)	24X CD-ROM drive (dedicated bay)
Graphics	4MB AGP graphics accelerator	4MB AGP graphics accelerator	4MB AGP graphics accelerator	4MB AGP graphics accelerator
Sound System	Built-in stereo speakers & microphone	Built-in stereo speakers & microphone	Built-in stereo speakers & microphone	Built-in stereo speakers & microphone
Warranty	5-year/1-year Micron limited warranty	5-year/1-year Micron limited warranty	5-year/1-year Micron limited warranty	5-year/1-year Micron limited warranty
Operating System	Microsoft® Windows® 98	Microsoft Windows 98	Microsoft Windows 98	Microsoft Windows 98
Training	1-year free! training at Micron U online	1-year free! training at Micron U online	1-year free! training at Micron U online	1-year free! training at Micron U online
Factory Direct Price	\$1,699 \$59/mo. Business, Lease 36 mos.**	\$1,999 \$70/mo. Business, Lease 36 mos.**	\$2,499 \$88/mo. Business, Lease 36 mos.**	\$2,699 \$94/mo. Business, Lease 36 mos.**
Order Code:	20022	20023	20020	20021



*Contract with outside Internet Service Provider required and is not included. Internet service questions must be resolved by ISP.

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Call toll-free or order online at www.micronpc.com/pccom



PUT THE POWER OF WINDOWS NT® TECHNOLOGY TO WORK FOR YOU.

OPTIMIZED FOR WINDOWS NT

1. As the first direct PC manufacturer to ship Windows NT back in '94, Micron's knowledge and experience can help you maximize your Windows NT network, now and into the future.

HIGH-PERFORMANCE, RELIABLE NETWORKING

2. The Micron ClientPro desktop and NetFRAME server utilize industry-standard technology and are powered by Intel's latest chip set technology, including the Intel Pentium II and Pentium II Xeon™ processors.

MICRON MAKES IT EASY TO HARNESS THE POWER OF MICROSOFT WINDOWS 2000

CRITICS HAVE ABOUT THE MICRON CLIENTPRO

"The Micron ClientPro is a powerful, reliable, and easy-to-use PC that can handle any task you throw at it." — PC Magazine, Nov. 98

"The Micron ClientPro is a powerful, reliable, and easy-to-use PC that can handle any task you throw at it." — PC Magazine, Nov. 98

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"The Micron ClientPro is a powerful, reliable, and easy-to-use PC that can handle any task you throw at it." — PC Magazine, Nov. 98

As the industry looks ahead to Microsoft Windows 2000 (built on NT technology), Micron offers a way to get ahead of the game today. Whether you're looking to upgrade to Windows NT® 4.0 Workstation or preparing for a company-wide shift to Windows 2000, our ClientPro® managed PCs and Micron™ NetFRAME® servers will be among the first to support the full potential of Microsoft Windows 2000. Network-ready right out of the box, built on industry standards, and packing the power of the Intel® Pentium® II processor 450MHz, the ClientPro puts more manageable power in your office. And if you're looking for a reliable and expandable server, it would be tough to beat Micron's NetFRAME servers running with the powerful new Intel Pentium II Xeon™ processor. Nothing maximizes a network today and tomorrow like Windows NT technology – and no one delivers it better than Micron. And as the first PC company to ship Microsoft Windows NT in 1994, it's no surprise that Micron's **AdvanceDeploy** program gives Micron users early access to Windows 2000.

"MICRON'S NETFRAME 3100 GIVES YOUR WEB CUSTOMERS WHAT THEY WANT BEFORE THEY CLICK AWAY."

— PC Computing, A-List, Best Web Server, Nov. '98

"MICRON'S DUAL-PROCESSOR... SERVER RUNS FULL SPEED AHEAD."

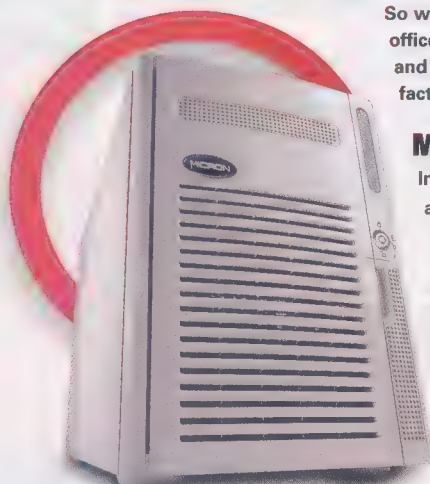
— PC Computing, A-List, Editors' Choice



So when you're ready to put the power of the ultimate business operating system into your office network, look to the experience and affordability of Micron ClientPro managed PCs and Micron NetFRAME servers. Call today for more information or to order direct from the factory or visit www.micronpc.com/pccom.

Micron University - The Ultimate Training Tool

In our continuing effort to build not only powerful systems, but powerful users, we are proud to introduce Micron University. Offering over one hundred free⁵ online classes, seminars and self-paced tutorials on the hottest topics in computing and business today, Micron University will turn any Micron owner into a highly trained power-user. When you combine this powerful new tool with Micron's revolutionary MPower™ purchase program, offering qualified users no interest,^{***} no payments for six months and our PowerXchange trade-in options, you get more than a great machine at a great price, you get a deal you probably won't find anywhere else. Call today to order your system and to find out more about Micron University.



Micron NetFRAME 6200

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3

VOL. C/N SEC. 05
99.3

PLANNED TECHNOLOGY MIGRATION

3. To simplify technology planning and implementation, Micron designs all ClientPro and NetFRAME systems to have long model lifecycles, consistent components and planned technology transitions including the upcoming industry shift to Microsoft Windows 2000.

HIGHLY MANAGED

4. Based on the Wired for Management specification and Desktop Management Interface compliant, ClientPro can be managed from a single point on the network. And every ClientPro desktop and NetFRAME server is backed by Micron's unmatched service and support programs.



New Rules. New Tools.™



ClientPro CS 450

The Highest Performing Managed PC*

Intel® Pentium® II processor 450MHz
512KB internal L2 cache
128MB 100MHz SDRAM
8.4GB Ultra ATA hard drive*
17" Micron 700Vx (15.9" display)
32X max speed CD-ROM drive
8MB Real 3D Starfighter AGP graphics
64-voice PCI WaveTable sound
3Com 3C905 WOL 10/100 network card
5-year/3-year Micron Power™ limited warranty
1-year free training at Micron U Online

Intel LANDesk® Client Manager
Microsoft® Windows NT® Workstation 4.0
Norton AntiVirus

SMART II hard drive monitoring
Chassis intrusion detection
Fan, temperature, and voltage problem reporting
Virus detection reporting
Remote Wake Up capability
WinTower case
3.5" floppy drive
104-key enhanced keyboard
Microsoft IntelliMouse™

\$2,049 ^{\$72/mo.}
Business Lease.
36 mos.^o



NetFRAME 3101

The Perfect Small Business Server

Intel Pentium II processor 400MHz
512KB internal L2 ECC cache
128MB ECC 100MHz SDRAM
9GB UltraWide SCA hard drive*
32X max speed CD-ROM drive
5-year/3-year Micron Power limited warranty
Dedicated server technical support, 7x24
1-year next-business-day on-site service***

Intel LANDesk Server Manager
Emergency Management Port Console

Supports up to two Intel Pentium II processors
100MHz frontside bus and up to 1GB memory support
Integrated Ultra Wide SCSI-3 dual channel controller
Intel PRO/100+ Server Adapter
Integrated RAID upgrade support
5 expansion slots: 3 PCI, 1 ISA, 1 shared PCI/ISA
8 drive bays: 1 external 3.5", 2 external 5.25"
5 hot-swap redundant 1.0" hard drive bays

\$2,499 ^{\$87/mo.}
Business Lease.
36 mos.^o



NetFRAME 6200

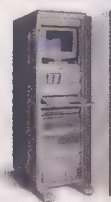
High-Powered Server For Fast-Growing Businesses

Intel Pentium II Xeon® processor 450MHz
512KB integrated L2 ECC cache
128MB ECC EDO DRAM
9GB U2W LVDS SCA 1" hard drive*
32X SCSI CD-ROM drive
5-year/3-year Micron Power limited warranty
Dedicated server technical support, 7x24
1-year next-business-day on-site service***
NOS support (3 first-year incident resolutions)

Intel LANDesk Server Manager 6.0
Emergency Management Port Console
Microsoft Windows NT Server 4.0 (10-user license)

Supports up to four Intel Pentium Xeon processors
Options for 512KB, 1MB or 2MB L1 cache
4GB ECC EDO support (16 DIMM sockets)
Integrated Ultra-2 Wide LVDS dual channel 8 narrow SCSI controller
7 expansion slots: 6 PCI, 1 shared ISA/PCI
6 internal, hot-swappable hard drive bays
1 hot-swappable 400-watt power supply (upgradable to 3 w/redundancy)
3 external 5.25" media bays and floppy drive
Free-standing pedestal chassis standard (7u rack mount option available)

\$6,999 ^{\$226/mo.}
Business Lease.
36 mos.^o



NetFRAME 9200

The Mission-Critical Enterprise Server

Intel Pentium II Xeon processor 450MHz
512KB internal L2 ECC cache
256MB ECC EDO DRAM
2 dedicated 4GB U2W LVDS redundant hot-swappable boot drives
32X max speed CD-ROM drive
5-year/3-year Micron Power limited warranty
Dedicated server technical support, 7x24
1-year next-business-day on-site service***
NOS support (3 first-year incident resolutions)

Intel LANDesk Server Manager 6.0
Emergency Management Port Console
Microsoft Windows NT Server 4.0 (10-user license)

Supports up to four Intel Pentium Xeon processors
Options for 512KB, 1MB or 2MB L2 cache
8GB ECC EDO support (32 DIMM sockets)
Intel PRO/100+ Server Adapter w/Adaptive Load Balancing and Adapter Fault Tolerance software
Integrated Ultra-2 Wide LVDS dual channel controller
10 expansion slots: 4 hot-plug ready 64-bit PCI slots, five 32-bit PCI & 1 PCI/ISA slot shared
2 hot-swappable 750-watt 220-volt power supplies (upgradable to 3 w/redundancy)
7u rack mount chassis (cabinet and accessories sold separately)

\$14,199 ^{\$458/mo.}
Business Lease.
36 mos.^o



DataFRAME 450

The Highly Scalable Mass Storage System

Dual/Split SCSI bus disk sub-system w/8 drive bay capacity
1+1 (2 total) redundant hot-swappable power supplies (300 watts each)
9GB U2W LVDS SCA-2 hot swappable hard drive*
3u height rack mount chassis w/rails
3-year Micron Power limited warranty
Dedicated server technical support, 7x24
1-year next-business-day on-site service***

Web Storage Manager (environmental monitoring system)
Supports up to 8 SCA-2 hot swappable hard drives
Supports 1" or 1.6" hard drives heights
Maximum storage capacity: 144GB per enclosure
Ultra-2 Wide 80MBps transfer rate
Low Voltage Differential SCSI Interface (12 meter cable length)
Optional deskside/pedestal version available

\$2,899 ^{\$101/mo.}
Business Lease.
36 mos.^o

THERE'S NO BETTER TIME TO TRANSITION TO WINDOWS NT® TECHNOLOGY.



micron systems, equipped with the easy to operate Microsoft Windows NT

4.0 Workstation operating system, allow your business to achieve

immediate improvements in productivity. The power of a Micron

system running Microsoft Windows NT Workstation offers the greatest return on

investment and ensures that you own the best upgrade path to future technology

such as Microsoft Windows 2000.



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**Only one other monitor can compare with our
award-winning VisionMaster™ 450.
Fortunately, it has the iiyama name on it too!**



VisionMaster 450
\$599 ESP



January 1999
VisionMaster 450



November 1998
VisionMaster 450



1998
VisionMaster 450



October 6, 1998
VisionMaster 450



August 1998
VisionMaster 450



Perfect Five-Star Rating
January 1998
VisionMaster 450



May 1998
VisionMaster 450



February 1999
VisionMaster 450



VisionMaster Pro 450
\$699 ESP

DIAMONDTRON™ NF (Natural Flat)

The new iiyama VisionMaster™ Pro 450, with DIAMONDTRON™ NF (Natural Flat) CRT technology, is a great addition to the iiyama family of award-winning monitors. Not only does it incorporate all the popular features of the VisionMaster 450, but its new technology now provides this in a flatter screen. And at a refresh rate of 115 khz, it delivers the best resolution for any 19" monitor—period.

With the iiyama VisionMaster 450, you already get the highest scan frequency and refresh rate for any shadow mask 19" monitor. Combine this with our VisionMaster Pro 450 and you have two 19" monitors delivering unparalleled viewing performance.

	CRT Monitor Model/ Viewable Area	TCO	Dot Pitch/ CRT Type	Max. Horizontal Scan Rate	Max. Resolution	Est. Street Price
21"	VisionMaster Pro 502 (19.5" VIS)	TCO '95	0.28mm/AG	110khz	1800 x 1440@75hz	\$899
	VisionMaster Pro 501 (19.5" VIS)	TCO '95	0.28mm/AG	96khz	1600 x 1200@75hz	\$939
	VisionMaster 502 (19.5" VIS)	TCO '95	0.27mm/dp	110khz	1800 x 1440@75hz	\$999
	VisionMaster 501 (19.5" VIS)	TCO '95	0.27mm/dp	96khz	1600 x 1200@75hz	\$939
19"	VisionMaster Pro 450 (18.0" VIS)	TCO '95	0.25mm/AG	115khz	1800 x 1440@80hz	\$699
	VisionMaster 450 (18.0" VIS)	TCO '95	0.26mm/dp	102khz	1600 x 1200@80hz	\$599
17"	VisionMaster Pro 400 (16.0" VIS)	TCO '95	0.25mm/AG	96khz	1600 x 1200@75hz	\$469
	VisionMaster 400 (16.0" VIS)	TCO '95	0.26mm/dp	96khz	1600 x 1200@75hz	\$409
	S702GT (16.0" VIS)	TCO '95	0.28mm/dp	96khz	1280 x 1024@85hz	\$369
15"	VisionMaster 350 (13.7" VIS)	MPR-II	0.28mm/dp	69khz	1280 x 1024@65hz	\$209

iiyama®

For the name of your local dealer call: (800) 394-4335 • www.iiyama.com

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Infolink 129 at: www.pccomputing.com/infolink



Perfect Five-Star Rating
January 1998
VisionMaster Pro 500



January 6, 1998
VisionMaster Pro 17



Performance & Technical Excellence
March 1997
VisionMaster Pro 21



Six Time Winner
Jan 1997, Feb 1997, March 1997,
April 1997, May 1997, June 1997
VisionMaster Pro 21



October 7, 1997
VisionMaster Pro 17
October 6, 1998
VisionMaster 450



September 1998
VisionMaster Pro 502



Twelve Time Winner
July 1996, Jan 1997, March 1997, July 1997,
Sept 1997, Jan 1998, March 1998,
May 1998, July 1998, Sept 1998
VisionMaster Pro 17
April 1998, August 1998
VisionMaster 450



December 1998
VisionMaster Pro 450



Contact iiyama.com
for information on our TFT LCD
Pro Lite™ Series.



ISO 9001

Hoax

It was one heck of a New Year's. In Times Square they released balloons, fired up a searchlight supposedly visible from Mars, and, of course, dropped the 500-pound aluminum ball. (Not to be outdone, revelers on the roof of the Lebanon Unfinished Furniture building in the Pennsylvania pig-snout capital lowered their own 100-pound ball, made entirely of baloney.) But just wait till next year, say the Y2K alarmists. The fireworks will come from

starving, frozen, gun-waving hordes rioting in the streets. It'll be economic meltdown, the end of civilization as we know it, Judgment Day.

Doom Here's their goofball scenario: Computers everywhere will choke when the calendar flips to 00. So will 50 billion embedded chips. The power grid will fail. No lights. No heat. No phone. No banks or ATMs. No juice for pumps, so no water, no gas. No gas means no food deliveries.

It gets worse. Nuclear power plants run amok. Prison gates spring open and criminals all scamper away. Terrorists seize the moment and attack with chemical and biological bombs. The military's high-tech weapons fail, and foreign enemies swarm across our borders. With no water, the smallest blaze fans into a firestorm that reduces every city to cinders. The only thing that *will* work are lawyers waiting to pounce on the little bit of money left over in a tidal wave of liability lawsuits.

The Red Cross is worried enough that it added a Y2K entry to its Web site, right up there with earthquakes, floods, hurricanes, and tornadoes. The National Guard is rumored to be

drawing up mobilization plans, with a sanitized dry run in May. Even the straight-laced *New York Times* reported that 10 percent of the nation's top executives are stockpiling food, ordering generators, and buying guns.

Religious zealots have started relocating to remote Y2K survival sites: High 54 Ranch in Arizona, Prayer Lake in Arkansas, and God's Wilderness in Minnesota. New members are asked to bring food and ammo.

So, is the sky really falling? Will 1/1/00 truly be the Day the Earth Stood Still? Should you buy K rations, and pack heat? Get real.

Y2K misinformation comes from three sources. Most is from scare-mongering consultants, who gleefully predict companies will bleed \$600 billion in fixes. Some larger Y2K firms are charging over \$100,000 a day.

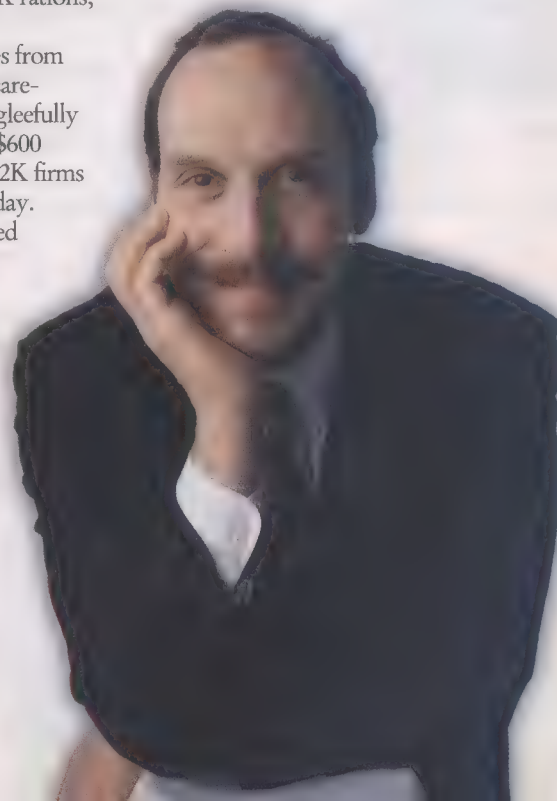
A lot comes from wide-eyed conspiracy crazies convinced the Feds will use such chaos to impose martial law, confiscate property, break up families, and create a new currency system, with piles of new

bills stashed in Canadian warehouses. And the rest is from religious kooks bracing for Armageddon.

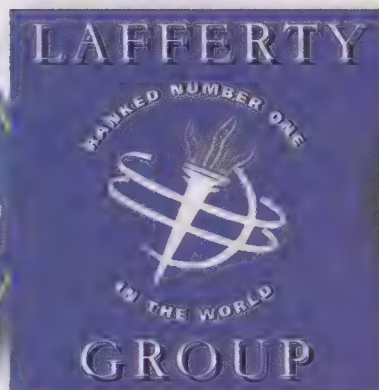
Gulp But businesses aren't stupid. The stock market and most big banks have already addressed the problem. So have the power companies, according to the North American Electric Reliability Council. They're all so terrified by endless litigation that they'll make sure they're ready to handle the dreaded 00.

You can be sure of a few things. First, there will be brushfires next January, but nothing apocalyptic—and besides, this will clear out the deadwood of aging technology. Second, anytime any dimwit makes any computer mistake for the next few years, they'll blame it on the Y2K. And finally, the Millennium Bug will enter the Urban Legend Hall of Fame, right next to the Kentucky Fried Rat, the Michelangelo Virus, and Missing Kidneys in the Bathtub Full of Ice. It's the biggest baloney ball of all.

E-mail somerson@zd.com



So, is the sky **really**
falling? Will 1/1/00 truly be
the **Day the Earth**
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Hustlers

When asked why he allowed his Web site to post ad-sponsored editorial, Dilbert cartoonist Scott Adams replied, "For the slower students, I can summarize it this way: They give us money. We like money." Spoken like an old hand at harlotry; you can almost smell his cheap perfume. It's no secret that Web sites are becoming small-time bordellos that cater to a motley clientele of advertisers. But in their eagerness to perform any service an advertiser

demands, most Web-site madams don't realize that they're strangling the long-term profits of their fine establishments.

Sorry to be party poopers, but Web ads don't work. And until site owners wake up to certain realities, Internet commerce will continue to have the stench of ill repute.

Advertisers are fickle johns.

Worse, they're lousy tipplers. Some studies predict the estimated \$1 billion spent last year on Web advertising will zoom to \$10.5 billion in the next four years. But even if these rosy forecasts came true, they would amount to less than 5 percent of the total spent in advertising through other media last year. Moral: Even Fortune 500 companies are Internet tire kickers. Should anyone show you a business plan that bets big on Web advertising in the next 18 months, recommend a strong cup of coffee.

Surfers are fickle too. Before littering your site with crass come-ons, consider the multitudes of surfers who click away because they're sick of promotions that hijack their browsers. Or who disappear forever through the endless pop-up windows that whisk

them into Alice-in-Adland. Or who find better things to do with their lives than wait for an advertiser's sparklies, animations, and Java scripts to load before reaching content. When surfers flee, so will advertisers.

Statistics lie. No one knows how to effectively measure consumer response to an Internet ad. No one knows the formula for the size and content of an ad that sells. No one even knows if a brand can truly be marketed via the Net. Solve any of these puzzles, and you could buy the Atlanta Braves.

Advertisers want to shanghai your surfers. "Click here to win a free Porsche" might have been last year's yawner come-on. But with keener competition, advertisers now offer instant frequent-flier miles, cash, cameras, and kitsch. With all this free booty, why would anyone hang around *your* tatty site? Do everyone a big favor—pop the purchase form directly onto your site, rather than forcing said surfer to click away. With the sale cinched, the surfer continues to browse your site. You and your advertiser both win.

You can only sell out once.

So keep your skirts clean. A site that blurs the line between content and advertising—calling the relationship "sponsorship"—hopes to exude the pedigree of National Public Broadcasting or some such. Seven idiots in America will buy into this hokum. Everyone else will recognize the site as an Internet hustler.

Rogues ruin it for everyone.

Bogus ads for AT&T have been known to flash across sites on the Web. Why? The site owners hoped the prestigious corporate banner would legitimize their low-rent sites. Wrong. Shenanigans like these hurt everyone.

Bandwidth will bedevil you. TV viewers will click out of a McDonald's jingle faster than you can scratch your armpit. Then they click back when programming resumes. Given the dilatory pace of the Web, Net surfers click away forever. Why not let your site's repeat visitors turn off an ad for good once they've seen it?

E-mail taylor&jerome@zd.com

Seven idiots in America will buy into this **hokum**. Everyone else will know the site's a Net **hustler**.



Shotguns have always had a way of hurrying things along.

(Now, they're
doubling your
modem speed too.)

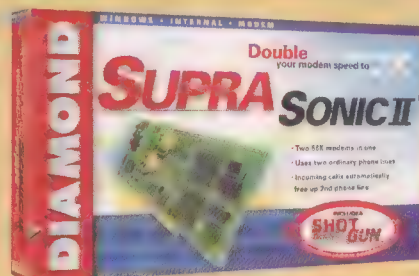
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SHOTGUN
TECHNOLOGY

Feeling the pressure to move faster in today's world? Try the SupraSonic II with Shotgun Technology—the innovative new modem that delivers Internet access up to 112K. Diamond's exclusive Shotgun technology delivers a double barrel of bandwidth by combining two 56K modems on a single board. So you can get the fastest dial-up speeds available using two ordinary phone lines. Plus, the SupraSonic II includes intelligent software that maintains a reliable connection even while releasing your second phone line for incoming calls or faxes. Diamond has integrated the V.90 standard and Rockwell K56flex technology for superior compatibility and performance. And now



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The Skinny

The newest flat-panel displays are awe-inspiring. The best ones look exactly like a backlit Kodachrome transparency. (Current state-of-the-art is Silicon Graphics' 1600SW 1,600-by-1,024 wide-screen digital display, driven by Number Nine's Revolution IV graphics card.) Question is, do you really want to look at such a bright screen constantly? Except for graphic arts work, the answer is often no. Of course brightness can be easily corrected by

turning down the juice with software or other methods. The real problem involves Windows. Years ago Microsoft promised to grow fonts and graphics proportionately when you increased the size of a window. Whatever happened to this idea?

Not to Scale Higher-resolution screens call for scalable Windows apps. Take Microsoft Word for example (please!). On an 800-by-600 19-inch screen, 10- or 12-point Times Roman is easy to read. On the same 19-inch monitor at 1,600 by 1,200 you get 5- or 6-point type—unreadable unless you have hawk eyes. If you increase the font size to something you can see for editing—say, 18 points—you have to reduce it before printing. Changing the screen properties to large fonts doesn't cut it either because you tend to work with large fonts once you go to 800 by 600 or 1,024 by 768. The jump to 1,600 by 1,200 needs a new setting.

Even if you set every font to be as big as possible in the Properties window, there are too many fixed miniature fonts scattered throughout Windows. There may be a Registry or an INI file that changes these, but I

haven't found it yet. Take the Properties window itself. Right-click on your main screen, then click on Properties. The tabs on this dialog window that say Background, Appearance, Screen Saver, and so on are fixed fonts that appear to be about 3 points on a high-resolution monitor. Unreadable.

What about just changing the screen resolution to 1,280 by 1,024 or 1,024 by 768? You do need higher resolutions to manage the complexity of Windows and its numerous layers, but flat panels don't handle this well. In fact, flat panel makers tell you to run their screen at "native resolution." Translation: You run a 1,600-by-1,024 screen at that resolution, period. If you change the resolution to something different on the digital panel, it just shrinks the size of the display. Switching to 640 by 480 gives you a small box in the middle of the big screen.

Analog flat panels that can scale make a mess of it. The fonts are even less readable. And far too many children's games require 640-by-480 resolution. Flat-panel vendors fess up that they're

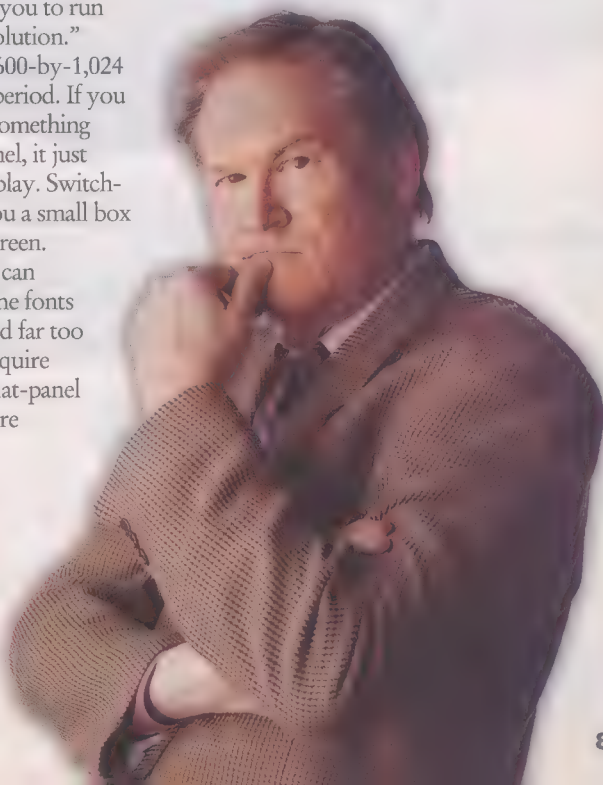
ignoring lots of usability issues for the sake of cool technology.

Compatibility Caveat Nokia's Anders Frisk, one of the honchos of the Video Electronics Standards Association (VESA), argues that you may be throwing your money away if you buy a digital flat-panel display before the industry standardizes the interface and specifications. Digital displays are so closely tied to the video card they are sold with that they may not function properly if interchanged with another digital system.

No doubt, flat panels are the future. But I'm writing this column on my 21-inch tube. Its softer image is a bit easier to work on. Reminds me of the sound-quality comparisons between good vinyl records and early CDs. At first some people preferred the softer sounds of vinyl to the shrill sound of CDs. But most people ultimately preferred CDs. It'll be that way with flat panels too. Just don't overlook the differences in the meantime.

E-mail pccdvorak@zd.com

Flat-panel vendors fess up that they're **ignoring lots of usability issues** for the sake of cool technology.





SONY

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Plus it has features that make personal computing even more convenient. Things like an Ergo-Angle™ LCD Display, AutoAlert™ e-mail notification system and a Sony Memory Stick™ slot (see right for more details).

The VAIO Slimtop LCD Computer.
It could only be from Sony.

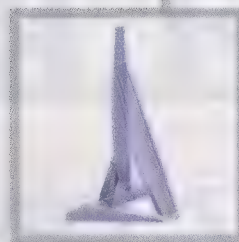
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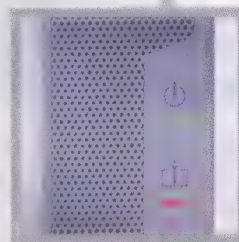
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Six programmable power keys that let you launch any application with the push of a button. A palm rest that converts to a keyboard cover for a sleek "at rest" look. And a dual-sided mouse connection for left- or right-handed use.



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New!

The 7-Pound Corner Office

Ditch your desktop: 366MHz Pentium II portables rewrite the rules. By Marty Jerome

Don't smirk. This time, that notebook PC your coworker constantly refers to as his *desktop replacement* might really live up to its billing. The performance gap between notebook PCs and their desktop counterparts is smaller than ever. Thanks to new 366MHz Pentium II mobile processors, the latest notebooks truly pack the muscle to do double duty as desktop machines and traveling tools.

Beyond a boosted clock speed, this new generation of processors, often referred to by the code name Dixon, sports 256K of *on-die cache*—cache that's on the same piece of silicon as the microprocessor and runs at the same clock speed. This faster, integrated cache translates to superior performance. In our tests, we saw a 30 percent performance hike over comparable 300MHz Pentium II portables. And 366MHz portables have adequate iron for upgrading to Windows 2000 when the time comes.

No Compromise All five of the systems we tested were top-drawer affairs with the best of accessories. That said, most were priced at well over \$3,000. Some waded in thigh deep at nearly \$4,000.

For flat-out performance, none is faster than Dell's Inspiron 7000. It sailed ahead of the company's own 300MHz Latitude CPiD 300XT by a stunning 32 percent. Credit goes in part to the machine's ATI Rage Pro LT video circuitry, which comes with

4MB or 8MB of memory (our test unit had 8MB).

The \$3,549 Inspiron has plenty of design finesse, beginning with its gargantuan 15-inch active-matrix display. The machine's media bay seats a combo floppy-24X CD-ROM drive or a combo floppy-2X DVD drive (you tell Dell which you prefer). Either will swap with a second lithium-ion battery.

But you'd better belong to a gym: The machine is big (10.5 by 12.9 by 2.5 inches) and heavy (8.9 pounds).

And while the keyboard layout and response are excellent, we'd gladly trade the touch pad for a pointing stick.

Winning Proposition If you don't mind settling for a slightly smaller screen (14.1 inches), WinBook's crafty XL² is almost as fast as the Dell and serves up better dollar value. For starters, the \$3,399 XL² comes with a whopping



Dell Inspiron 7000

VERDICT A power-packed portable—
for short hops.

PROS Big screen; blazing performance.
CONS Shoulder-wrenching heft.

\$3,549 est. street price (as tested) / Dell /
(800) 879-3355 / InfoLink No. 719

128MB of memory (which we reduced to 64MB for our testing). It also bundles a 2X DVD drive as well as an LS-120 floppy. It has composite and S-Video ports. A V.90 fax modem is standard, and you get both a pointing stick and a touch pad—which can be used interchangeably.

Like the Dell, the WinBook is powered by ATI's top-shelf 3D Rage Pro LT graphics circuitry with 4MB of memory. Unlike the Dell, however, the WinBook weighs a manageable 7.1 pounds. Its usability, power, and dollar value should propel this machine to the top of your list.

Gateway's \$3,209 Solo 5150 is priced within \$100 of the WinBook. And at 6.8 pounds, it's almost the same weight. The similarities don't end there. The Solo comes with a 14.1-inch screen, a 2X DVD drive, and an LS-120 floppy drive. Its performance isn't shabby either: It churned Windows applications some 24 percent faster than our 300MHz baseline notebook—only a step or two behind the Inspiron and the WinBook XL².



WinBook XL²

VERDICT Best dollar value for high-end performance.

PROS Stunning performance; fine usability; solid dollar value.

CONS Undersized function and document control keys.

\$3,399 est. street price (as tested) / WinBook /
(800) 254-7806 / InfoLink No. 720

★★★★ EXCELLENT ★★★ GOOD ★★ ACCEPTABLE ★ POOR ☆ UNACCEPTABLE



Gateway Solo 5150

VERDICT Fine choice for performance on a budget.

PROS Good dollar value; solid usability.
CONS Middling video performance.

\$3,209 est. street price (as tested) / Gateway / (800) 315-2536 / InfoLink No. 721



Toshiba Tecra 8000

VERDICT Power and refinement for deep pockets.

PROS Speedy; ingenious design.
CONS Gouging price; no DVD.

\$3,999 est. street price (as tested) / Toshiba / (800) 867-4422 / InfoLink No. 722



NEC Versa SX

VERDICT Your first choice if portability is key.

PROS Just 6.3 pounds; splendid design.
CONS Slowest of the lot; no video out.

\$3,699 est. street price (as tested) / NEC / (888) 863-2669 / InfoLink No. 723

Kudos to the special scrolling button on the Solo's touch pad (even if we prefer a pointing stick) and the included S-Video port. The keyboard layout is first-rate despite undersized function keys. As is typical of Gateway's portables, there's a lot to like. But faster video circuitry, a fax modem, and a hardware-based MPEG-2 decoder would make this bundle even sweeter.

Lighten Up The same could be said of Toshiba's pricey \$3,999 Tecra 8000, which makes a DVD drive

\$329 extra. Once you get past the sticker shock, the Tecra's usability pleases eyes, fingers, and shoulders. Its 6.3 pounds are more than manageable, and the 14.1-inch LCD is both beautiful and spacious. Keyboard layout is good, though function keys are undersized and there are no Windows keys and only one Ctrl and one Alt key.

There's also a big 6GB hard drive, a fax modem, and a composite video port. And the Tecra performed impressively, posting a 24 percent gain over our 300MHz baseline notebook.

No doubt about it: You'll love this machine—if your pockets are deep.

NEC's \$3,699 Versa SX is also a usability showcase, even if its performance lagged behind its 366MHz rivals. Mind you, it's no slouch: It still outpaced our 300MHz Dell Latitude by 20 percent in Windows application benchmarks. What's more, the machine is the lightest of the group, weighing a mere 5.3 pounds. Yet it comes with a big 14.1-inch active-matrix display and all the bells and whistles—including swappable 2X DVD and LS-120 drives.

Never mind that it lacks a pointing stick. The Versa's portability more than atones for this flaw. Yes, it's expensive. But for business travel, this is the friendliest way to put power on the road.

Even if you rarely hit the road, you'll be well served by the power and features that any of these 366MHz notebooks deliver. And while none of these portables will let you down, the WinBook XL² offers the best dollar value for high-end performance.

Windows Performance

Dell Inspiron 7000

WinBook XL²

Gateway Solo 5150

Toshiba Tecra 8000

NEC Versa SX

Dell Latitude CPID 300XT

NOTE: WINSTONE 99 MEASURES A PC'S OVERALL PERFORMANCE WHEN RUNNING THE MOST POPULAR WINDOWS-BASED 32-BIT BUSINESS APPS. ALL TESTS WERE PERFORMED ON A DELL DIMENSION XPS R450.

Push It Their clock speeds have been ratcheted up by only 20 percent over 300MHz machines, but these 366MHz notebooks deliver a performance payoff that is considerably better.

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2D performance

Millennium G200 8MB AGP 135

WinBench 99 Business at 1280x1024x24bpp@75Hz

3D performance

Millennium G200 8MB AGP 368

3D WinBench 99 at 1024x768x16bpp@85Hz

The tests were performed without independent verification by Ziif-Davis. Ziif-Davis makes no representations or warranties as to the result of the tests. WinBench, 3D WinBench and WinMark are trademarks of Ziif-Davis Inc. in the US and other countries. All tests performed with Windows 98 on an Intel 440BX motherboard configured with a 400MHz Pentium II and 128MB of 100MHz SDRAM. WinBench 99 Business run at 1280x1024x24bpp@75Hz refresh. 3D WinBench 99 run at 1024x768x16bpp triple buffered with 16bit Z at 85Hz refresh under DirectX 6.0. Matrox Millennium G200 configured with 8MB of SGRAM for the AGP bus and using driver revision 4.50.

matrox

Definitely Not Your Boss's ThinkPad

IBM's latest laptop brings portable power into the hands of consumers. By Leslie Ayers

Silly rabbit, laptops are for businesspeople. That's the traditional way of thinking. It's also the reason today's portable PCs are typically designed to fit the needs, lifestyle, and budget of the corporate road warrior rather than the home user.

Of course, if you're a home user looking for a laptop to tote between the kitchen and the living room and to take on a trip to the in-laws, you're paying top dollar for a machine that may be more laptop than you really need.

Boom Box IBM had the home user in mind when it designed the ThinkPad i Series, the company's first line of portables for



IBM ThinkPad i Series 1450

VERDICT A ThinkPad for under two grand? Where do we sign?

PROS Excellent usability and sound.

CONS Slow processor; few expansion options.

IBM Corp. / \$1,799 est. street price / (800) 426-7255 / InfoLink No. 724

Crank It Up The ThinkPad i Series 1450 has welcome extras: Even when the PC is turned off, you can listen to your favorite CDs using the front-mounted controls.

consumers. Everything about these notebooks, from the design to the price, screams consumer. The unit we tested, the i Series 1450, costs \$1,799 and comes with a 266MHz MMX Pentium

processor, 64MB of memory, a 4.3GB hard drive, a built-in 56Kbps modem, and a 13.1-inch active-matrix screen. It also packs a wheelbarrowful of preloaded software, including Lotus SmartSuite Millennium.

You get the ThinkPad's trademark good looks—sleek black case and all—but the i Series 1450 sports several extras you won't find on corporate ThinkPads. Altec Lansing speakers flank both sides of the LCD, and audio controls on the front of the box let this ThinkPad double as a CD player, even when the notebook itself is turned off. Despite a not-so-slim weight of 7.7 pounds, the 1450's audio feature is just one reason you won't mind lugging it with you on the road: It's a welcome addition to hotel rooms that don't have radios.

Spend a couple of hours typing on its luxurious keyboard, admiring its crisp, bright display, and using its handy scroll buttons to navigate Web pages and long documents. We dare you to tell us you're not hooked on the i Series 1450. And with a battery life of 3 hours and 20

minutes, it'll get you through most of a coast-to-coast flight.

Trade-off Our test machine's outdated 266MHz Pentium MMX processor didn't win any speed races in our tests (it was 28 percent slower than the slowest 300MHz Pentium II box). For \$2,499, you can spring for the i Series 1720, which has a 266MHz Pentium II CPU. But by the time you read this, the new Pentium IIs—333MHz and 366MHz (see "The 7-Pound Corner Office," page 84)—not to mention the new mobile Celerons, will have blown past that too.

And expansion possibilities could be better. Except for two PC Card slots, you don't get much room to grow. You can't swap the floppy or CD-ROM drive out for something else like, say, an extra battery or Zip drive. IBM doesn't offer a DVD option yet either.

These dings aside, the i Series 1450 is an outstanding, affordable machine with excellent usability. You don't need an executive title or budget to own this ThinkPad. And even if you do, you'll still be impressed with the 1450.

Hard Drive Lockdown



KanguruDisk Portable

VERDICT Stellar solution for transporting and securing data.

PROS The fastest, biggest, baddest removable storage available.

CONS Unlike Zip, no sharable media.

From \$230 for 3.2GB to \$700 for 16.8GB, est. street prices / Interactive Media Corp. / (888) 526-4878 / InfoLink No. 725

Imagine being able to lock your PC in a safe for ultimate security. Absurd? OK, how about just the hard drive? Interactive Media's removable EIDE KanguruDisk hard drive lets you do just that, offering a new level of safety for confidential data.

The KanguruDisk, available in capacities from 3.2GB to 16.8GB, slips into a KanguruDock in one of your PC's drive bays—it locks into place—and functions just like a standard disk. The KanguruDisk

weighs just a pound, so it's perfectly suited for transferring gargantuan files. To take your data to a PC without a KanguruDock, use the optional KanguruPlug.

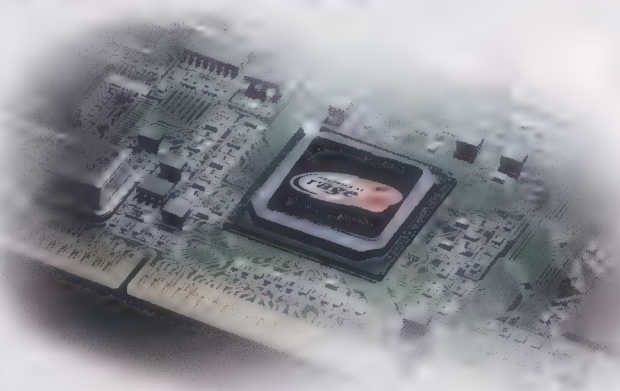
The KanguruDisk is Ultra-DMA compatible, providing transfer data speeds of up to 33.3MBps; it screams compared with other removable media drives. Add that to its high capacity and you have the perfect solution for backing up, transporting, and securing your data. **GORDON BASS**

Simply Stunning 3-D

These days, 3-D graphics cards are as common as PCs running Windows. To impress us, a graphics card must do more than merely offer the third dimension. We want to be sucked into a realm with reflective surfaces so sharp and smooth you can practically see yourself, and water that looks so cool and refreshing you want to dive right in. Of course, superfast performance doesn't hurt either. That's the beauty of ATI's new Rage Fury board.

King of the Hill The Rage Fury is powered by ATI's new Rage 128GL chip, which renders images using a dual-rendering pipe to process pixels faster. It also has on-chip texture and pixel caches, a 32-bit Z-buffer, and bidirectional

ATI's 128-bit Windows accelerator is as fast as it gets—for now. *By Julie Polito*



Direct Memory Execution. This translates to incredible 3-D images—not only smooth surfaces and great textures, but also excellent execution of more complicated 3-D images like water and metal.

The AGP-based Rage Fury wasted no time in

claiming its place at the top of the 3-D hill. In our Winbench 99 3-D tests, the Rage Fury bested Diamond's Viper V550, our prior 3-D champion, by 17 percent. The Viper still holds the edge in 2-D performance, but with scores this high, a few points either way doesn't make a visible difference on your 2-D desktop.

The Rage Fury is upping the 3-D stakes even further. At a time when most big 3-D players boast the standard 16MB of memory on their boards, ATI ships the Rage Fury with a massive 32MB as its standard configuration. As a result, the Rage Fury has a maximum resolution of 1,920 by 1,200 and can handle even giant textures at 1,024 by 768 with very little lag. Even better, the Rage Fury can scale up to 32-bit color without taking a toll on performance. You'll quickly appreciate the realism and detail that

★★★★★ ATI Rage Fury

VERDICT Gets you further into the game than any other 3-D board.

PROS Unheard-of 3-D performance; 32MB of RAM; fast DVD playback.

CONS Slow 2-D; expensive.

\$199 est. street price / ATI Technologies / (905) 882-2600 / InfoLink No. 726

Fast and Furious If you can't settle for just any 3-D performance, ATI's new Rage Fury won't disappoint. It comes with 32MB of RAM and onboard DVD.

color like this injects into your favorite games.

DVD Included Of course, the Rage Fury supports the major 3-D application program interfaces (APIs), including DirectX 6.0 and OpenGL. Unlike most other cards, however, the Rage Fury boasts hardware-DVD playback. This means you don't need to buy a separate MPEG-2 decoder to watch DVD movies. There's also a standard video-out port, and, if you want TV in your PC, it teams up nicely with ATI's new ATI-TV Wonder add-on board.

And you don't need to pay a premium for all these extras. At \$199, the Rage Fury costs the same as a TNT-based 3-D card like the Diamond Viper V550. If you're looking for today's ultimate PC gaming experience, get ready to Rage.

Answering Machine Meets Modem



MultiTech MessageSaver

VERDICT Good multipurpose modem for home offices.

PROS Operates independently of PC.
CONS Limited bundled software; cryptic front panel.

Less than \$200 est. street price / MultiTech Systems / (800) 328-9717 / InfoLink No. 727

If yours is the typical home office, the only thing tighter than your office space is your budget. That's why MultiTech Systems' MessageSaver packs four essential communications features—a V.90 modem, a full-duplex speakerphone, fax capabilities, and an answering machine—into one unit.

Installing MessageSaver is routine; just be sure you have a serial cable. PhoneTools, its rudimentary communications software, manages

phone calls, faxes, and voice mail. Unfortunately, PhoneTools is lackluster, with a difficult Import Records feature for the Phone Book and a focus on appearance instead of usability-enhancing wizards and help.

Thankfully, you don't have to use PhoneTools, as MessageSaver works even when your PC is turned off. The device can receive up to 30 fax pages or 30 minutes of voice mail; there's even remote access and caller ID.

RICH SCHWERIN

Windows 3-D Apps

ATI Rage Fury

Diamond Viper V550

NOTE: 3D WINBENCH 99 MEASURES THE PERFORMANCE AND FEATURES OF A PC'S 3-D SUBSYSTEM UNDER WINDOWS 98. ALL TESTS WERE PERFORMED ON A DELL DIMENSION XPS R450.

Raging Success

Make way for the new 3-D champ. ATI's Rage Fury speeds past even Diamond's impressive Viper V550.

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Of course, bright, sharp Sony images have been appearing in living rooms across America since the advent of Trinitron® televisions. But now our high-performance portable projector brings 1000 ANSI lumens of brightness with XGA resolution into the office. And the ease of Advanced Scan Conversion will make you think you're right back on the couch with the remote. Especially when the whole office starts fighting over it.



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Innovation at work.™

SONY

Low-Cost Color for the Entire Office

Sluggish? Not this hot pair of ink-jet printers. By Kyla K. Carlson

Time was, ink-jet printers were slow, produced ho-hum color pages, and were best reserved for occasional home use. No more. A silent revolution has been under way in recent months. The latest ink jets from Hewlett-Packard, the 2000C and the 2500C, are head-turners—delivering fast speeds and eye-popping output quality.

Printing a presentation? Both printers produce vibrant and laser-smooth color, even on plain paper. And how does 3 minutes strike you for a 3-page PowerPoint file? Compare that with the 30 minutes it usually takes to get the same output from a typical ink-jet printer. The smaller 2000C is actually the faster of

HP DeskJet 2000C



HP DeskJet 2500C



the two printers, with the 2500C hot on its heels.

Another penny-pinching touch is the ink technology itself. Not only do you replace each color separately, but the printhead is separate from the ink tank. You'll replace your ink tanks several times before you have

to replace printheads, and you'll probably have fewer problems with clogged nozzles and mused pages.

The 2500C can be outfitted for your network with an internal print server; the 2000C requires an external print server (sold separately). The 2500C supports up to

13-by-19-inch output and up to three paper trays (the 2000C has only one tray, which takes paper as large as 8.5 by 14 inches).

The speeds are fast, the price is right, and the gorgeous output means your documents will always look their best.



HP 2000C

VERDICT Fast, affordable network color printing.

PROS Blazing-fast print speeds; gorgeous output; cheap ink.

CONS Print server costs extra.

\$799 est. street price / Hewlett-Packard / (800) 752-0900



HP 2500C

VERDICT It's big, it's bad, and it's ready for your network.

PROS Awesome paper handling; lightning-fast speeds; great output.

CONS Make room—this is enormous!

\$1,249 est. street price / Hewlett-Packard / (800) 752-0900

No-Wait Network Printers

The ultimate 32-ppm printers for under three grand.

By Kyla K. Carlson

Kiss the office logjam goodbye and say hello to new high-speed network printers from Hewlett-Packard and Lexmark. These speedy machines put their predecessors to shame—each for a little under \$3,000.

HP's LaserJet 8100N comes equipped with a 32-ppm engine, 16MB of

RAM, and a 10/100BaseTX Ethernet card. Lexmark's Optra Se 3455n is identically equipped, except it sports a 34-ppm engine. Despite the difference in engine speeds, the printers performed nearly equally in our tests. The Optra outpaced the LaserJet

by a scant 6 percent for a 50-page text document, but the LaserJet churned out presentations 8 percent faster.

Each printer is capable of 1,200-dpi output. Text quality is outstanding from both printers, but we prefer the bolder and richer black letters the Optra produces. Both printers also do well with photographic output, though the dot patterns are a little more noticeable in the Optra.

Paper handling for each printer is excellent. Out of the box, the LaserJet supports 1,100 sheets of paper and the Optra handles 1,250. Add optional input drawers and you're looking at 3,100 sheets for the LaserJet and 3,750 for the Optra.



HP LaserJet 8100N

VERDICT Blazing-fast network laser speeds and sensational output.

PROS Fast presentation performance; outstanding paper-handling options.

CONS Pricier than the competition.

\$2,840 est. street price / Hewlett-Packard / (800) 752-0900



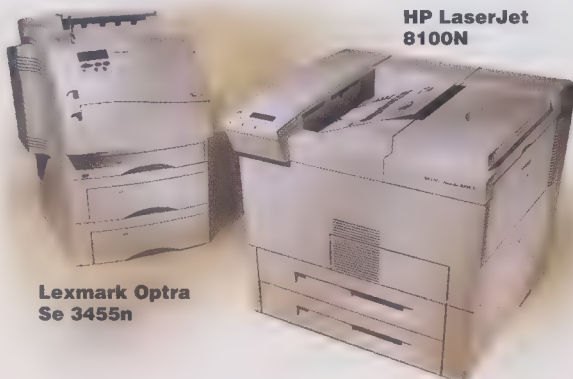
Lexmark Optra Se 3455n

VERDICT A low-cost alternative.

PROS Fast text printing; expandable.

CONS Lacks mail bins and stapling options.

\$2,599 est. street price / Lexmark Int'l / (800) 539-6275 / InfoLink No. 728



Lexmark Optra Se 3455n

The LaserJet offers more finishing options, including mailbox sorters and stapling capabilities.

Up front, the Optra offers more printer for less money, with its faster engine and higher paper capacity. But we give the nod to the LaserJet for its versatility with finishing tools.

Nothing lasts longer.

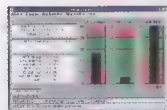


APC Back-UPS®, APC Back-UPS Office® and APC Back-UPS Pro® will provide runtime which meets or exceeds that of any same VA UPS for desktop PC applications or your money back. (See policy for details.) For more information, visit www.apcc.com.

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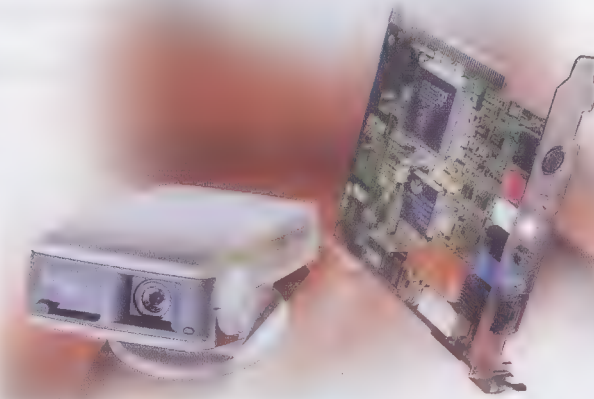
Videoconferencing Gets Real

Intel's ProShare offers quality conferencing on the quick. By Sarah L. Roberts-Witt

For a generation raised on *Star Trek* and the *Jetsons*—even for their parents, weaned on *Buck Rogers* reels—it's hard to believe that the videoconferencing of science fiction still isn't science fact. But now there's finally something to videophone home about. When it comes to high-quality videoconferencing at a decent price, the Intel ProShare Video System 500 delivers eye-popping results for only \$799.

The latest member of Intel's venerable ProShare family runs over ISDN, over LAN connections via TCP/IP, and over the Internet. It supports both the H.320 and H.323 videoconferencing standards. In addition, it's straightforward to set up and ships with everything you need to get going—Intel ProShare conferencing software, a PCI video capture card, a headset, a video camera, and a boom microphone.

Easy Steps Setting up and installing the ProShare 500 on our LAN was painless, a tribute to both the system's simple design and its easy-to-follow documentation. The whole



Infrequent Flier Hold face-to-face meetings without leaving your desk thanks to Intel's ProShare Video System 500. It's simple to set up and delivers realistic 30-fps video and a top-notch bundle of applications for \$799.

process, which included popping in the cards, connecting the many cables, and installing the software, took less than an hour on our two desktop machines. Our only complaints were that even on a LAN-only installation, we had to fake out the system by entering pseudo-ISDN information, and we had to stop and restart the software installation to adjust our monitors to 16-bit color. But these were minor and easily addressed irritations.

Once ready to initiate our conference, we were greeted by the familiar

ProShare faux conference room interface, which provides quick access to dial lists and conference attendees, as well as chat, whiteboarding, NetMeeting, and PhotoExchange software. Also accessible from the ProShare conference room is a list of connections to various videoconferencing services, handy for setting up an ISDN videoconference with scattered attendees.

Aside from the easy setup and installation, the most impressive part of our ProShare experience was the 30-fps video quality, tough to beat at any price. We couldn't say the same for the sound quality. Though it wasn't terrible, there was fuzziness and feedback with the included headsets, even over our Ethernet network connection. You can use a microphone and speakers, which may provide better sound.

Make Your Point The ProShare 500's bundled applications are a nice touch



ProShare Video System 500

VERDICT Videoconferencing made easy with high-quality video to boot.

PROS Simple setup; nifty suite of included applications; 30-fps video.
CONS Middling sound quality; heavy-duty system requirements.

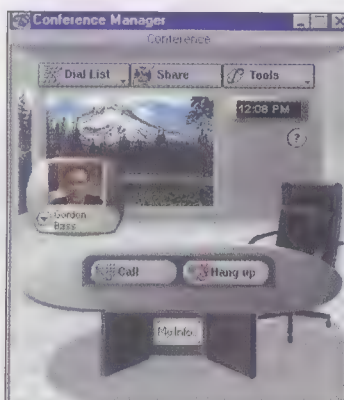
\$799 est. street price / Intel / (800) 538-3373 / InfoLink No. 729

and a snap to access. The chat option—a somewhat ironic addition for videoconferencing system software—is fun and easy to use, and lets you hold private conversations with any of the attendees.

The ProShare's whiteboarding software lets you craft drawings, create slides, and illustrate points. NetMeeting and PhotoExchange are well integrated: NetMeeting allows you to share applications and transfer files, and gives you quick access to the chat and whiteboarding applications in the ProShare suite. And PhotoExchange, another handy package, lets you send digital images to conference attendees; snap these during the conference or open existing files and send them as needed.

One potential drawback is the system's hefty hardware requirements. Just to say hello, you need a machine with an Intel Pentium II processor, 32MB of RAM for Windows 95 and 48MB for NT—Intel recommends 64MB of RAM for both—and 80MB of available hard disk space.

An impressive effort, the ProShare Video System 500 makes the often arduous process of installing a videoconferencing system almost enjoyable—and it delivers both the tools and the video quality to make videoconferencing a useful business application.



Pixel Paneling Get comfortable in ProShare's virtual conference room, which gives easy access to dial lists and other conference attendees.



All notebooks
travel.
Is there one
that soars?

Unlike other so-called "highly mobile" notebooks, the Compaq Armada 3500 doesn't swap performance for portability. Designed for the savvy traveler, its topflight specs include a Mobile Pentium® II processor soaring to 366 MHz—in a sleek package as light as 4.4 pounds.* With built-in 6.4 GB† hard drive, full-size keyboard, extended-life battery option and extra-durable magnesium alloy display casing, the Armada 3500 has everything you need for maximum flexibility—and unlimited mileage. To learn more, call 1-800-AT-COMPAQ. Or visit www.compaq.com/soar.



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Your Own Digital Editing Studio

Sony's VAIO PC makes you an audiovisual mix master.

By Kyla K. Carlson

Any home PC can handle e-mail and Web surfing. The real action is in digital video editing: tweaking movie clips and mixing audio tracks. For this, Sony's new VAIO PCV-E302DS PC is standing by, ready to turn you into a digital director.

Fitted with a 350MHz Pentium II processor, 64MB of RAM, and a 10.2GB hard drive, the \$1,499 VAIO is a solid PC. (A higher-end, \$2,000 PCV-E308DS has a 450MHz Pentium II processor, 128MB of RAM, and a 13.6GB hard drive.) But what makes this VAIO special is the way it handles video input. An i.Link—Sony's marketing name for an IEEE 1394, or FireWire,

port—lets you plug in any FireWire-enabled device, such as a digital camcorder, and swap video and audio at 200Mbps. The VAIO also serves up Optical Digital Audio Out, S-Link and NTSC, and S-Video Out for optimum connectivity.

A smart software bundle

makes it easy to work with all these devices and their numerous forms of data. Sony's Digital Studio Software lets you control digital audio and video devices such as CD players, MiniDisc decks, cameras, and camcorders directly from the PC. And the scaled-down version

of Adobe Premiere means you can create and edit killer movies with ease.

This VAIO offers a great way to dive into digital audio and video editing. And when you need to come back to earth and check e-mail, the VAIO PCV-E302DS has the tools for that too.



Sony VAIO PCV-E302DS

VERDICT Feature-rich and priced to sell, the VAIO exceeds your digital editing fantasies.

PROS Fast; top-notch components; outstanding editing software.

CONS Price doesn't include monitor.

\$1,499 est. street price / Sony Electronics / (800) 352-7669 / InfoLink No. 730

Pass the Popcorn When basic computing isn't enough, get the Sony VAIO PCV-E302DS. In addition to a powerful PC, you get a fully outfitted digital video editing studio.

Direct Deals on the Web

Can a small mail-order system startup compete with the Dells, Gateways, and Microns of the world? iDot.com thinks it can. iDot's Web-only PC business provides affordable systems fast.

Order a PC off iDot's

iDot.com's custom systems arrive at your doorstep in no time. By Julie Polito

Web site (www.iDot.com) or browse the site, then call in your order toll-free, and your system goes out within 48 hours of purchase. No other vendor

offers such a guarantee unless you pay extra for second-day shipping. iDot's friendly site has plenty of specials to choose from, and it's a cinch to custom-configure a system like our 450BX, a 450MHz Pentium II loaded with 64MB of RAM, a Matrox G200 graphics card, a 56Kbps modem, and Altec Lansing speakers. iDot deals in desktops only (no notebooks), and its Web purchase model is more suited to savvy Internet shoppers than to first-time PC buyers.

In our benchmark tests, iDot's 450BX lagged behind Micron's similarly configured Millennia 450 Max by a few points. In

fact, it's the slowest 450MHz Pentium II we've tested. Surprisingly, the Micron system also cost less—\$1,520 compared with the \$1,544 iDot PC.

If you want the fastest, cheapest system around, the 450BX doesn't deliver on either count. However, the iDot PC is still plenty fast, and it arrives at your doorstep even faster. So if you're tired of being another number to the big guys and need a system fast, iDot will send you a decent computer when you want it.

Web Exclusive Most mail-order-direct PC companies have a Web component, but iDot.com is completely Web based.



iDot.com 450BX

VERDICT The first Web-only direct company starts out strong but lags slightly on price and performance.

PROS Fast delivery; easy site navigation.

CONS Not the fastest or the cheapest.

\$1,544 list price / iDot.com / (888) 315-9563 / InfoLink No. 731

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Best-seller statement based on worldwide unit shipments, 1996-1997. Dataquest Inc. report on Consumer Photo Editing, June 16, 1998.

Infolink 310 at: www.pccomputing.com/infolink



Sharp Shooters

It's a great time for digital cameras. Most are born as megapixels, so they can snap photos that rival film. And they all sport attractive price tags, ensuring they won't be without an owner for long.

We snatched up two of the latest. The Hewlett-Packard PhotoSmart C30 stands out because of its unbelievably low \$399 price tag. The Olympus D-400 Zoom sells for twice that price but offers a truly state-of-the-art digital camera.

Hobbyist Heartthrob

The PhotoSmart C30 is all about comfort. Not only is it the most affordable introduction to high-resolution digital photography, but it's as familiar as your old point-and-shoot film camera.

The C30 is fairly quick

Digital cameras from Olympus and HP mix high resolution with great features. *By Pete Scisco*



Two to Tango The Olympus D-400 Zoom (left) is one of the best-designed megapixel cameras around. The HP PhotoSmart C30 is the most affordable.

too, taking about 2 seconds to store an image (though there's no fast-action burst mode). The included 4MB CompactFlash card holds 8 shots in Superfine resolution (1,152 by 872 pixels at 24-bit color depth), and you can

adjust the image quality to Fine or Normal (20 and 40 images, respectively).

We wish the C30's design didn't make it so easy to put your thumb on the 1.8-inch color LCD when you press the shutter release, and we found that the color balance on photos varies quite a bit depending on the quality of light. Thankfully, HP includes Microsoft's Picture-It software for effortless image touch-ups.

Skip the PC on Your Next Scan Job



Microtek ImageDeck

VERDICT Get quick-and-dirty scans onto a floppy or Zip disk—no PC required.

PROS One-button easy.

CONS No way to preview scans.

Microtek / \$499 list price / (800) 654-4160 / InfoLink No. 733

If you've been holding out on buying a scanner because you think they're too complicated, you'd better find another excuse. Microtek's ImageDeck is as easy to set up as a toaster.

Just plug in the power cord and start scanning. You'll find no SCSI card hassles, no conflicts, no cables—you don't even need a PC. You save images and text straight to its built-in floppy or Zip drive.

The ImageDeck is a bit bigger than a regular scanner, and its controls are similar to

a copy machine's—clear and easy to use.

The only drawback is that you can't preview your digital copies, but the ImageDeck's automatic settings make getting quality scans almost foolproof. You can set the resolution, amount of compression, and type of image you're scanning. At its top settings, the ImageDeck delivers 36-bit, 600-dpi scans, which is just fine for adding images into presentations or scanning text.

LIESL LA GRANGE NOBLE



Olympus D-400 Zoom

VERDICT You may never use film again.

PROS Superhigh resolution; 3X optical zoom capabilities; fast performance.

CONS Expensive for its class.

\$799 est. street price / Olympus America / (800) 622-6372 / InfoLink No. 732



HP PhotoSmart C30

VERDICT An affordable entry into the digital darkroom.

PROS High-res images; TV connection.

CONS Awkwardly placed LCD; color hues can be skewed depending on light.

\$399 est street price / Hewlett-Packard / (888) 774-684

Superior Firepower

You'll feel more like a professional photographer than a weekend shutterbug when you take aim with the Olympus D-400 Zoom. Slide the lens cover out of the way and the 3X zoom lens emerges with a satisfying motor hum.

A generous supply of dynamic RAM gives you 6 to 10 shots in burst mode (without flash), storing images at a speedy 2 shots per second. The camera's controls are on the back, where you can reach them while shooting, as is its handy 1.8-inch color LCD.

Olympus includes an 8MB solid state floppy disk (SSFD) as well as a FlashPath adapter with the D-400 Zoom, so you can stick the SSFD into your

PC's floppy drive and inspect your photos. The D-400 Zoom shoots in four 24-bit color modes ranging from a Standard Quality mode of 640 by 480 (JPEG) pixels to Super High Quality at 1,280 by 960 pixels.

Image quality is stunning, with color balance remaining true in variable light. Olympus even bundles a copy of Adobe's PhotoDeluxe for image editing and Enroute's Quick-Stitch for panoramas.

If you're a camera enthusiast with a hankering to go digital, or if you run an imagecentric business, the Olympus D-400 Zoom is a great choice. HP's PhotoSmart C30 is ideal for creative projects like Web pages and family albums.

expand your mind. legally.



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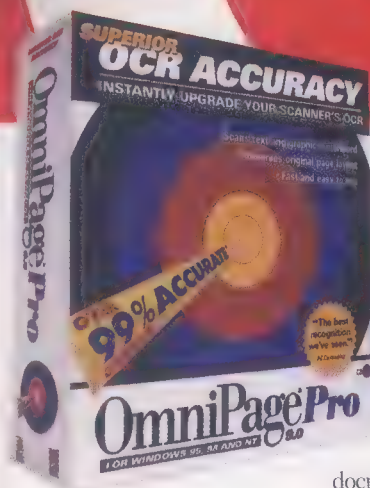
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Armchair Tarantino

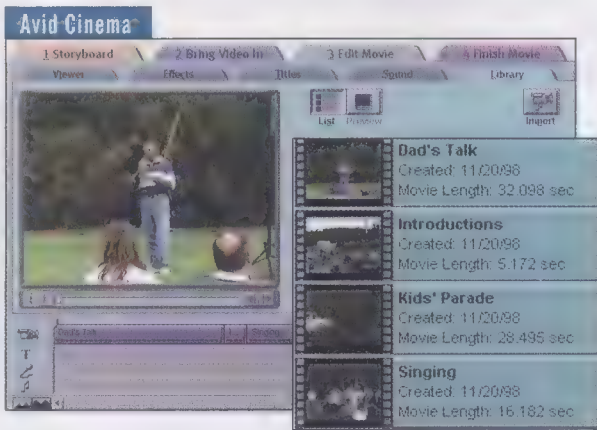
Turn your homegrown videos into films worth watching—it's easier than you think. By Gregg Keizer

Just because you wave a camcorder around doesn't mean you're a filmmaker. Editing makes a movie, and frankly, your videos—whether they're business projects or film noir experiments—and viewers deserve more than a simple press of the Record button.

Luckily, a new pair of inexpensive digital video-editing software packages—MGI Software's VideoWave II and Avid's Avid Cinema—can turn a bungled bunch of video footage into a coherent tale worth watching.

Catch the Wave Even though MGI's \$99 VideoWave II costs less than the \$139 Avid Cinema, VideoWave II is much more sophisticated. The program digitizes your analog video footage through your capture or TV tuner card. If your PC has a FireWire port (less colorfully called an IEEE 1394 port), VideoWave II will also draw digital video directly from a digital camcorder.

You'll find a library of special effects in VideoWave II—ranging from filters that warm up or cool down colors to still-photo editing tools that morph the scene with swirls or ripples. They all work with a simple click, and you can preview changes



Watch This Capturing and editing digital movies isn't just for the pros anymore. Avid Cinema walks you through video planning, capturing, and editing.

immediately. Control is tighter here than in Avid Cinema. For example, VideoWave II lets you decide exactly how titles appear, how they move, where, and how fast. Avid Cinema limits you to scrolling your titles vertically or horizontally.

And while all the controls, sliders, icons, and displays in VideoWave II's interface might seem overwhelming, they're easy to master. The key is the Storyline filmstrip, which shows a thumbnail of each scene and all transitions. You reshuffle the video's parts by dragging and dropping (as you do in Avid Cinema), but since the

Storyline filmstrip is always visible you don't have to switch screens. Bottom line: It's easier to rough edit a video here.

Sending your edited movie back to tape or hard disk is not quite as easy in VideoWave II as in Avid Cinema. And audio-video novices might find the VideoWave II Wizard and all of its questions (What format? What codec?) a bit confusing.

Digital Director Even a monkey can mutate boring videos into catchy short subjects with Avid Cinema. About as straightforward as painting by numbers, Avid Cinema takes you step by step through planning, capturing, editing, and saving video. Even before you begin, Avid Cinema provides predesigned storyboards that suggest shots and durations for your movie, which you can print and take into the field.

Avid Cinema grabs the raw footage out of your camcorder through your video capture card (there's support



Avid Cinema 1.0

VERDICT A first-rate digital video editor when you need hand-holding.

PROS Foolproof interface; storyboard templates; saves to tape or Web.

CONS Skimps on special effects.

\$139 est. street price / Avid Technology / (800) 949-2843 / InfoLink No. 741



MGI VideoWave II

VERDICT Turns even a basic home video into a major motion picture.

PROS Photo-style special effects; storyline makes editing easy.

CONS Intimidating interface.

\$99 est. street price / MGI Software / (888) 644-7638 / InfoLink No. 742

for most capture cards, including the ATI All-in-Wonder series and the STB TV card). The process is easy: Just press Record, and Avid Cinema digitizes video; click on Stop, and the shot's complete.

Editing these rough cuts into a polished picture takes neither brains nor effort. You trim clips by dragging handles, inserting titles and transition effects (Avid Cinema includes more than 60) with a click and some typing, and overlaying additional audio tracks from input sources such as CDs, your hard drive, or even the TV. Easy-to-understand wizard-style questions ensure that your final film is output in the appropriate format, whether it's to videotape, your hard drive, or the Web.

Avid Cinema's interface is plain-Jane compared with its sometimes-confusing competitor, VideoWave II, but you have to be brain-locked to get lost with Avid Cinema. Don't look here for the gewgaws found in VideoWave II, but check out Avid Cinema when what you want is simplistic, down-and-dirty video editing. For more power and features at an incredible price, tune in to MGI's VideoWave II.

Roll the Credits VideoWave II's interface is overrun with controls, icons, screens, and sliders. But the Storyline strip at the top makes editing a snap.



Fifth Time's a Charm

There's an old joke about pioneers getting arrows in the back, and businesses that installed early releases of Novell's NetWare operating system know exactly how it feels. Fortunately for Novell and its customers, the latest overhaul of its flagship network operating system is a dot-0 release that's stable enough to put to work now, without waiting for the minor revisions that will ultimately come in a year or two.

NetWare 5 contains many features that businesses have come to expect in a modern operating system, including a simplified installation process and a fully scalable LDAP3-compliant directory for accessing your corporate directories over the Internet. The basic NetWare 5 package also includes a pile of business tools, including the Oracle 8 database engine, the Netscape FastTrack Web server, and the Java Virtual Machine that KeyLabs ranks as the fastest on the market.

Payback NetWare 5 costs about a third more than a comparable Microsoft Windows NT installation. However, you'll probably be able to squeeze more connections per server out of a NetWare box than an identical server running Windows NT. Plus, the Windows NT you buy today is the same one that shipped more than two years

ago—and four service packs have failed to fix all the bugs.

As an example of how NetWare's advantages add up in the real world, the Chicago Mercantile Exchange will replace 70 servers, 52 of them running IBM's OS/2 and 18 running Windows NT, with 14 servers running NetWare 5. With this upgrade and by running Novell Directory Services (NDS) for NT on the remaining NT servers, the Mercantile Exchange expects to slash administrative expenses by 70 percent.

Zen Computing One more benefit of NetWare 5? A starter version of Novell's ZENworks desktop management suite. ZENworks reads a user profile at log-in to create and maintain desk-

top environments easily. By maintaining profiles centrally, network support teams will spend less time on the drudge work of moving, adding, and changing user accounts, and instead focus on the more important task of running your business.

Novell has also integrated new tools for managing IP addressing and naming conventions into NetWare Directory Services. These make it easier to do tasks like physically moving a server to a new site or adding a few more workstations, which in turn reduces the burden on a help desk by decreasing the likelihood of incorrect or duplicate addresses.

Finally, Novell has scaled up its support for enterprise network management systems from the likes of Tivoli and HP. For example, Novell added its NetWare Management Agents to the basic NetWare 5 package. These agents let you manage your servers through just about any management system you may already have in place. At the same time, NetWare 5 is simple enough to



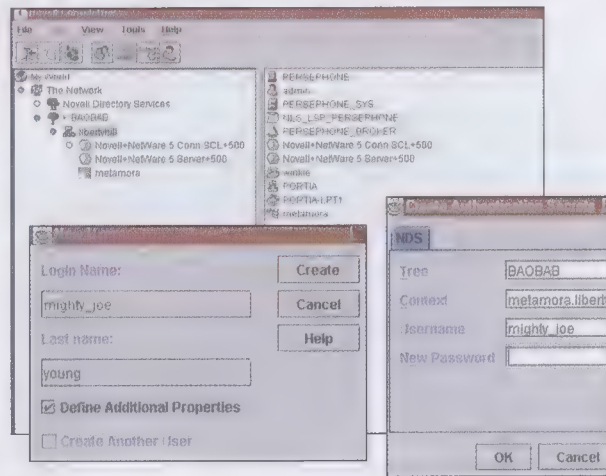
Novell NetWare 5

VERDICT Got NetWare? This is the upgrade you've been waiting for.

PROS Vast platform support; improved management features.

CONS Mixing IP and IPX still tricky.

\$1,058 est. street price for server plus 5 users / Novell / (800) 453-1267 / InfoLink No. 743

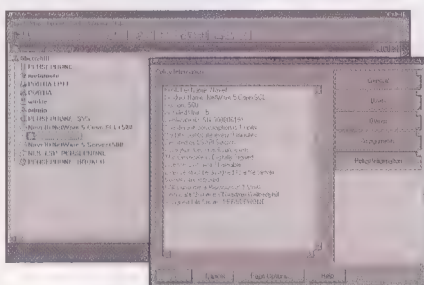


Central Station
NetWare 5's new Java-based administration tools make it easier than ever to manage your entire network from a single point.

deploy in smaller businesses.

Novell's biggest challenge is to win back the mind and market share it lost in recent years, especially to Windows NT. Shops with investments in BackOffice or other server applications running on a fleet of Windows PCs are still likely to give their business to Bill, and that makes sense. As impressive as the new NetWare is, it doesn't warrant a forklift upgrade from Windows NT 4.0. But if you're looking to get more juice out of an aging NetWare network, upgrading to NetWare 5 is a no-brainer.

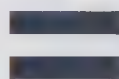
Until Windows 2000 arrives, NetWare 5 is a superb all-around choice for an up-to-date server operating system. It offers the standout performance of previous NetWare versions, and throws in an advanced directory service that competing products can't touch. Whether you're upgrading from NetWare 3.x or trying to untangle a mess of NetWare and NT servers, it's worth serious consideration.



Digital Identity
NetWare 5 gives you full access to details like license information and security policies, although some of the data may be overkill.



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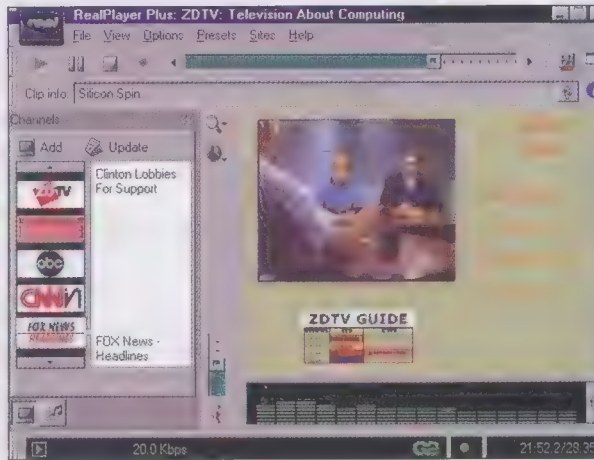
Get Your Video To Go

Nothing grabs a Web surfer's eye like a video stream, and with RealNetworks' next-generation video server, RealSystem G2, video quality is finally good enough to keep surfers coming back for more.

Worth Watching RealSystem G2, which we reviewed in final beta form, takes streaming media a long way from its humble origins. Now an open system that lets you incorporate a long list of image, music, and video formats, it also adds support for Synchronized Multimedia Integration Language (SMIL), which lets you integrate all these elements into one magnificent package.

But the best new RealSystem G2 feature is SureStream, a technology that

Turn it up! RealSystem G2 is the new standard for streaming Web video. By Geoffrey Williams



dynamically adjusts the quality of transmission according to the bandwidth available to the person watching the video. While veterans are used to the fits

and starts of streaming video, RealSystem G2 lets you say goodbye to the occasional gaps and gaffes you'll find in other streaming media products. This version of RealSystem leaves its only true competitor, Microsoft's NetShow, squirming in the dust.

To enjoy RealSystem G2-streamed audio and video, you'll need the free RealPlayer G2, available as a download, a browser plug-in, a Java applet, or an ActiveX control. The new RealPlayer boasts easy-to-organize channels with updating headlines that take you straight to today's hot topics. The player also automatically updates itself to the latest version, adding new features as they become available.

Astounding Sounds

Streaming audio quality with RealSystem G2 is impressive, with brighter, richer music, even over a 28.8Kbps connection. Although video quality is only modestly better, the real advantage is in the sophisticated way the server streams it. Rather



RealNetworks RealSystem G2

VERDICT The most flexible way to send streaming media across the Net.

PROS Huge content/platform support.

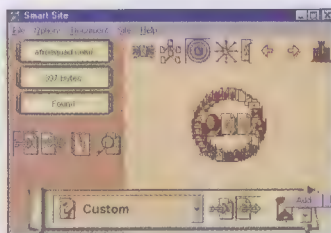
CONS Streaming video quality on 28.8Kbps modems is still marginal.

Starts at \$5,000 and up est. street price for server / RealNetworks / (800) 444-8011 / InfoLink No. 744

Smart Streaming

RealSystem G2 streams a wide variety of audio and video formats using intelligent dynamic streaming for the smoothest and most efficient transmissions.

Missing the Big Picture



Big Picture Technologies Smart Site 2.0

VERDICT Almost nonfunctional Web site analysis tool.

PROS None.

CONS Slow; buggy; crash-prone.

\$189 est. street price / Big Picture Technologies / (888) 424-4742 / InfoLink No. 745

Got a Web site? A site analysis tool is invaluable for tracking down broken links and slow-loading pages. And while the market is flooded with products that automate the process, Big Picture's Smart Site 2.0 is one you'll want to avoid.

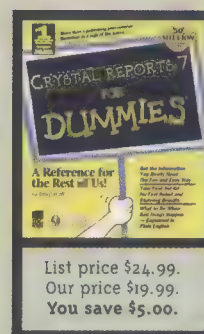
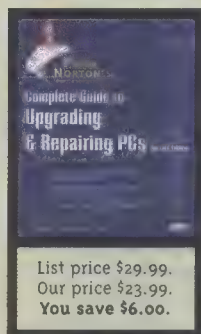
A confusing jumble of unlabeled buttons, Smart Site 2.0 stumbles you through site analysis with little success. Most of the test URLs we tried to examine didn't work at all: The software simply couldn't comprehend

the Web sites' pages. Even examining Big Picture's own test site didn't work.

When we finally got data about a site, it was hard to understand and provided limited information. Smart Site often crashed when looking at sites of 800 pages or more, and had us twiddling our thumbs for hours while waiting for results to display.

A better option? Market-wave's Hit List Professional 4.0, our A-List top pick (see page 64).

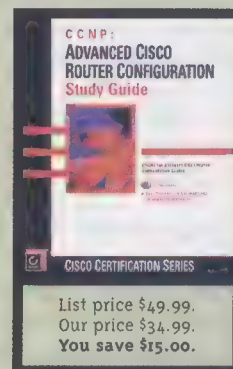
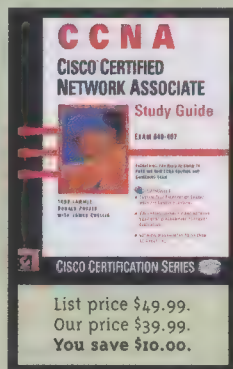
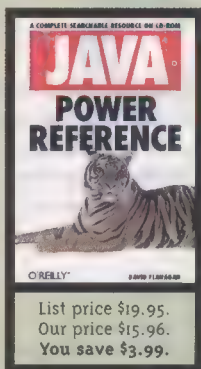
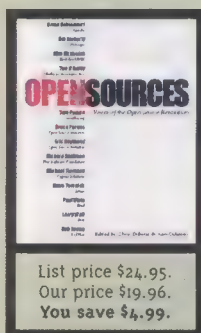
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Hassle-Free Defrags

Clean up your NT drives in a snap. By Wayne Kawamoto

You've tried voodoo dolls and evangelical prayer, even a few Celtic chants, but your server just won't get any faster. It's time to give Executive Software's \$260 Diskeeper 4.0 a whirl. It's a powerful defragmentation utility that optimizes your Windows NT-based drives quickly and easily. And it works across a LAN—one of many features you won't find built into the rudimentary defrag utility that's built into NT.

Diskeeper 4.0 works with both NTFS and 16-bit FAT systems. It analyzes your hard drive to provide a graphical, as well as numerical, indication of its fragmentation. From here, you simply tell the program to defragment your drive.

We tested Diskeeper on

several different computers running Windows NT Server, all of which had significant fragmentation. After letting Diskeeper optimize the drives, we saw performance increases between 3 and 15 percent.

Diskeeper is a full-fledged network program that lets

administrators schedule and perform remote defragmentation on a network. (There's also a \$50 workstation-only version that lacks network capabilities.) When you're squeezing your NT-based server or workstation for its best performance, Diskeeper is the most comprehensive



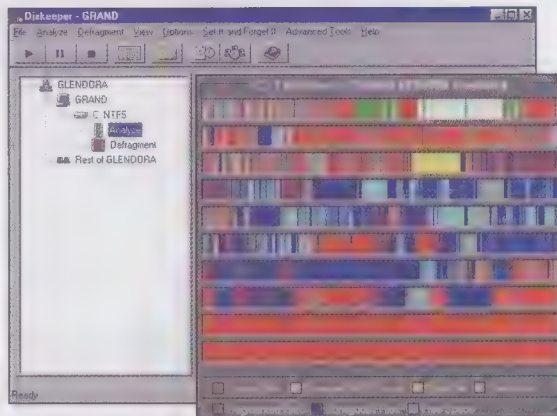
Diskeeper 4.0

VERDICT Optimize your server hard drives automatically.

PROS Strong administration.

CONS Windows NT only.

\$260 for NT Server, \$50 for NT Workstation,
est. street prices / Executive Software /
(800) 829-6468 / InfoLink No. 746



Fast Drives Executive Software's Diskeeper 4.0 optimizes your Windows NT system hard drives for speedy performance.

disk defragger out there. And when you've done everything you can think of to improve server performance, Diskeeper will surprise you. Which means that your \$260 investment is on track for a quick payback.

In our book, Diskeeper 4.0 is a keeper.

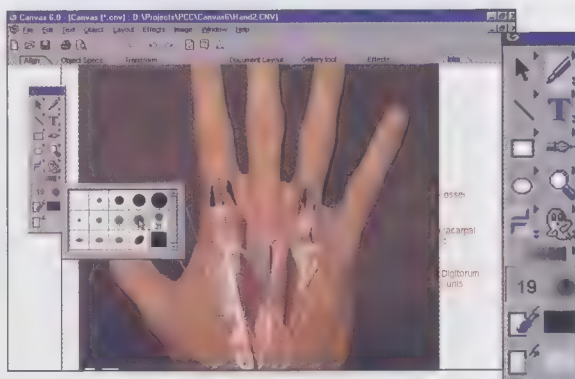
All-in-One Art Palette

Sometimes no knowledge is better than a little. With most graphics software on the market targeting either beginners or expert illustrators, the intermediate graphic designer is often left out in the cold. Thankfully, with Deneba's \$375 Canvas 6 you get an integrated, easy-to-use graphics package that's so sophisticated you're not likely to outgrow it.

Whether you need to create vector-based drawings, edit bitmap photos, or lay out typographic pages, Canvas 6 serves you well. And you save both time and money, since you don't need to switch between several specialized applications.

We found Canvas 6's new transparency tools alone to be worth the upgrade price.

Draw freehand illustrations or edit digital photos in one easy-to-use package. By Bob Weibel



Thanks to its new Sprite-Layer Technology you can blend multiple images to create realistic see-through effects—a car windshield, for example. A simple set of tools lets you set the degree of an object's transparency as well as any transparency gradients (circular, elliptical, and

so on). You can also lay one image on top of another and erase specific sections of the top layer to reveal the image underneath.

Canvas's new drawing tools include a three-point ellipse tool, a knife tool for cutting up vector drawings, and a fillet tool for precisely

rounding off corners. And the program's screen performance now seems almost instantaneous even with large gradients and complex drawings. If you've got graphics experience but can't afford several specialized programs, Canvas 6 is an ideal solution.



Canvas 6

VERDICT A sophisticated graphics program we can all use.

PROS Great transparencies; fast.

CONS Fewer tools than in a specialized program like Adobe Illustrator.

\$375 est. street price / Deneba Software /
(800) 622-6827 / InfoLink No. 747

Open Hand Whether you want to scribble a picture on your PC or touch up digital images, Canvas 6 has you covered. Among its new features are incredible transparency tools.



FOCUS ON YOUR CUSTOMER

Customer-focused, customer-driven. Over the past decade, the giants of Corporate America have made the customer their strategic centerpiece, investing huge sums in information technology to help them improve their customer relationships.

And, what they've been saying is, 'We have to start treating our customers like small businesses do...with the same personal attention to their needs and the same ability to customize a product or a service.'

While big businesses are using technology to play catch up with companies with one, five, ten, or 20 employees, small businesses all over the world are finding out they can use those same solutions to build their advantage.

SYMANTEC.TM

Software solutions can help small businesses serve their customers better than ever, while at the same time helping them improve their own productivity. There are software solutions that not only put the power of information technology at their fingertips, but also protect customers from the problems that systems can cause.

Symantec has spent nearly two decades providing such solutions to individuals, businesses and other institutions around the world, making them more productive and keeping their computers safe and reliable — anywhere, anytime.

"With such revolutionary developments as corporate downsizing, computing and the Internet, the number of small businesses around

you more touch and feel when it comes to your customers?

Understanding

Customer-driven means that a business offers its customers products and services they really need, rather than presenting "a product in search of a market." The price is right; the packaging and shipping is the way they want it; their operation is 24 hours a day, so your support is too. The best businesses are the ones that understand their customers well enough not only to see all this, but also to see what's coming around the bend.

It's never been an easy task. You need to know your customer base by market or geographic segment, but that's not enough. You need to

tools can help you maintain the professionalism and personal touch you've been known for, reminding you and your staff about important customer dates and events.

Responsiveness

Responsiveness on a day-to-day basis says you provide customers with the answers they need when they need them. So sales and service people — no matter where they are — must have instant, easy access to customer databases and the ability to transmit quotes, presentations, and even training programs to customer sites. Access can also be speeded by technology that, for instance, enables caller ID to bring up the record before the sales or service person says "good morning."

It doesn't matter what information your customer needs and how fast, there's a communication vehicle for getting it there and you have to use it all: e-mail, voice mail, fax, overnight delivery. For instance, computer-to-fax is the fastest way to get your customers hard copy. We're talking about hard copy you send from your computer that might contain a just-assembled combination of the latest promotions and product illustrations.

Further, your customers should be able to access your systems to obtain the same information via e-mail or "fax on demand."

Voice mail? It's your image, they say, and technology exists for any size company to make sure you sound right, respond quickly, and keep a record of calls and faxes.

Productivity

Being able to provide your customers with better products and ever higher levels of service, being

Be understanding, responsive, productive and protective. This is what being customer-driven is all about.

the world has exploded," says Symantec's Dana Siebert, VP, Americas. "This is great because small businesses have always been a major source of innovation and service. A primary goal for companies like ours has to be to help level the playing field for them and contribute to their growth.

"What we're saying here is they have an advantage — their understanding of and responsiveness to their customers — and we think we can help them keep it."

The Touch and Feel of Technology

What does it mean to be customer-focused and customer-driven? How can technology give

you know your customers individually and they need to feel that you do — that you know their business, you know them as people.

For instance, to create winning proposals over and over again, you want your customer's plans and the history of your relationship at your fingertips. We're not only talking volume, credit history, and the bottom line, but also the nuances of how you have worked together.

Technologically, both the top-down planning and the individual interaction require a customer database: an information file on your customers and their accounts — the notes, the phone discussion logs, the presentations and proposals.

As your company grows, software

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able to develop and retain close relationships with individual customers as your customer base grows — all this carries a cost to your business. You can't stay customer-driven as we've described if your resources are strained and your bottom line suffers.

The technology solutions we've noted above — the customer and prospect database, word processor, e-mail messaging and other communications tools such as computer-to-fax and the calendar — are also crucial productivity tools for your organization, allowing them to be responsive to customers literally at the push of a button.

To improve ease-of-use, while safeguarding your investment in new and older computing equipment, such tools must operate on all major computing platforms.

These tools are win-win solutions for the front lines of your business — the people who plan and deliver what the customer needs. You also need technology that protects your business and your customer's, and solutions exist for your back office to provide these safeguards.

Protection

Flash...computers are vulnerable and fallible. They crash, wiping out that 10-page proposal you hadn't saved. They can get viruses. Installing new programs can mess up your system. Worse, you can wipe out data on your customer. And, electronically connected to your customers, you can send them a virus that wreaks havoc on their systems.

The good news is that technology solutions exist to fend off these problems.

Small Business Solutions



ACT!™ turns contacts into relationships and results. This customer and calendar management software provides instant access to critical information about your customers and appointments and triggers on-screen alerts to remind you of important dates. ACT! supports Internet and e-mail access and lets you share information with your team.



WinFax PRO™ gives you hassle-free faxing right from your computer, allowing you to send professional-quality faxes, including material from your ACT! databases, to one or more customers. You can also economize by scheduling faxes for off-peak hours. WorkGroup Fax Sharing enables WinFax Pro to share its modem and phone lines with other WinFax PRO copies on the network.



TalkWorks PRO™ creates a more professional image for small businesses with up to five employees. This voice and fax communications software provides fax-on-demand, enabling your customers to dial your computer and initiate faxes of promotions, price sheets, and other information. Away from your office? TalkWorks PRO can call you with messages or caller numbers. Other features: multiple mailboxes and call management, tracking all calls and faxes.



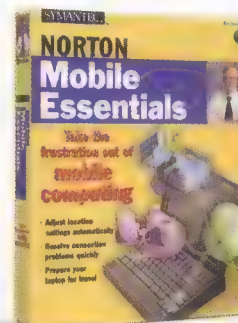
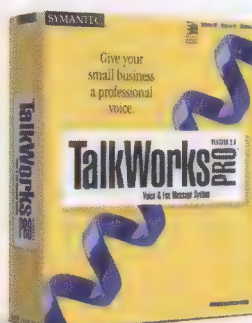
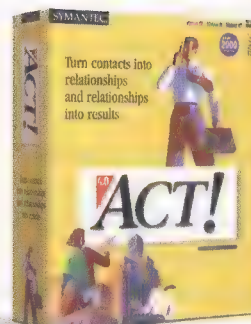
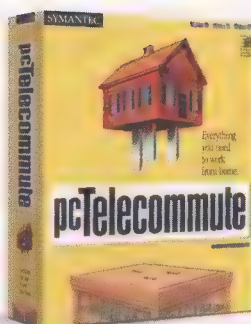
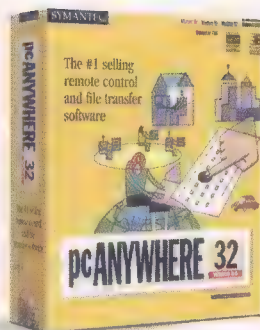
pcANYWHERE™ helps you keep building customer relationships no matter where you are. From your field office in Detroit, you can carry on electronic sessions with your customers in New York, sending them training programs or presentations from your laptop or the corporate computer in Chicago. Naturally, pcANYWHERE lets you access customer data at the home office. Many security features are built-in.



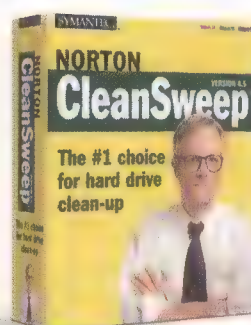
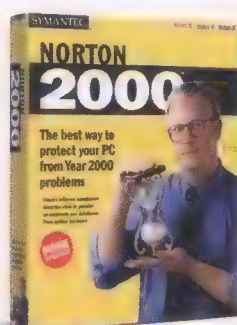
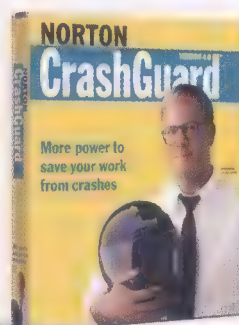
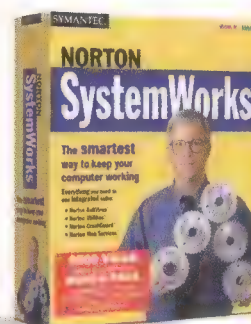
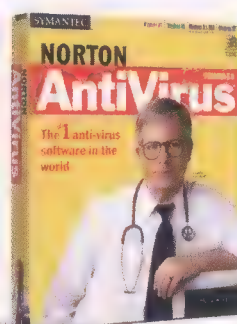
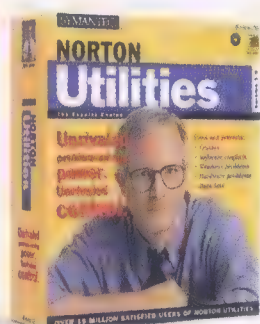
Norton AntiVirus™ eliminates today's and tomorrow's viruses. Norton AntiVirus is the best protection for you and any customers you are connected to electronically. PC Magazine, in giving this product the Editor's Choice award this year, called it "the best combination of virus protection, performance, and usability." Testing laboratories confirm that it provides 100% detection of "in the wild" viruses from any source, such as the Internet, floppy disks, and shared files.



Norton Utilities™ provides unrivaled problem-solving power and control by detecting, repairing, and intercepting most computer problems. A trusted solution for more than 15 years, Norton Utilities continuously monitors your system so you don't have to guess which utility to launch when there's a problem. Worried about crashes and disaster-recovery downtime? As PC Magazine has stated, Norton Utilities is "the industry leader" in protecting against crashes—three times as effective as competitors—and provides advanced disaster-recovery capabilities.



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Brave New Walkman

Forget about CDs and minidisks. The Walkman of the Internet age lets you take MP3 tunes on the go. Simply download your favorite MP3s—the format

Download thousands of free Internet tunes with Diamond's portable MP3 player. *By Alexei Oreskov*

that crams near-CD-quality music into bite-size files—from the Net, then feed up to an hour's worth of them

into Diamond Multimedia's new Rio PMP300 player for listening anywhere.

The Rio PMP300 is slightly larger than a pager, and light as a feather. A clever Hold button deactivates all the Rio's controls, in case you accidentally nudge the Stop button when the device is in your pocket. And because your songs are stored on a chip instead of a disc, they never skip. We only wish the volume went a bit louder, though; even the loudest setting is easily drowned out by the typical street din.

It takes just minutes to move fresh audio tracks from your PC to the Rio PMP300 via the included cable. But while we loved



Free Music
Diamond's new Rio PMP300 is half the size of a standard Walkman and holds an hour's worth of MP3 tunes from the Web.



Rio PMP300

VERDICT Listen to MP3 tunes anywhere, anytime.

PROS Light and small; nice controls.
CONS Clumsy software.

\$200 list price / Diamond Multimedia / (800) 468-5846 / InfoLink No. 758

the Rio player, we can't say the same of the cryptic Rio Manager software that comes with it. Selecting the songs we wanted to push into our Rio proved a frustrating guessing game: Sometimes the software erased songs that were already on the device; other times it mixed up the tracks at random.

Software hassles aside, this is the coolest and smallest Walkman on the block, and a must-have for tapping into the Internet's stash of free tunes. Your friends will be drooling with envy.

Perfect Assistant

Your office is the road, your cell phone is a permanent appendage, and your personal assistant just quit to join a startup. So how do you stay on schedule without going insane? Try Portico, a voice-controlled virtual assistant from General Magic.

Portico includes voice mail, call management, fax, a

Use your voice to stay organized with Portico, but keep an eye on those service charges. *By Rich Schwerin*

paging service, a calendar, an address book, e-mail support, and basic online news and stock-quote services. Getting started with Portico was surprisingly easy, and after a half hour of training, Portico recognized commands such as

"Open my mailbox" and "Look up my appointments." The messaging features are strong, but you can't integrate Portico with your existing voice mail.

Portico's basic \$19.95 monthly service plan seems



General Magic Portico

VERDICT Your own voice-activated virtual assistant—for a price.

PROS Accurate voice recognition.
CONS Expensive; services are limited.
\$19.95 to \$149.95 per month, plus \$50 activation and setup fee, and per-minute usage charges / General Magic / (800) 468-4342 / InfoLink No. 759

like a bargain, even after the \$50 activation and setup fee. But the plan includes only 60 minutes of access; each additional minute costs 20 cents. At the high end, \$149.95 a month nets you 1,300 minutes of service (a mere 45 minutes a day), with each additional minute costing 15 cents. Even for moderate users, Portico is expensive.

Portico boasts impressive services at not-so-impressive prices. But for mobile executives, Portico is still less expensive than a warm body—and almost as personable.



May I Help You?
General Magic's Portico uses voice recognition to manage your phone calls, e-mail, faxes, paging, and even your calendar.

Voice Memos on the Go

If all you do while on the road is create short documents and log an occasional reminder or to-do, you can leave your laptop at home. Jet-setters will enjoy Dragon Systems' Dragon Naturally-

Speaking Mobile records whatever you say, wherever you are. By Leslie Ayers

Speaking Mobile, a \$249 mobile dictation device specially designed for Dragon's speech-recognition software (included with the unit).

The recorder chalks up a few improvements over standard digital voice recorders—a curvy design that fits easily in your hand, straightforward buttons and LCD menu, and the ability to organize speech files into as many as four folders. Still, playback has lots of static and doesn't sound much better than on other similar recorders we've tested, although a noise-canceling microphone helps.

But using the recorder caused a noticeable downturn in Dragon NaturallySpeaking's normally dead-on accuracy. Fortunately the software is a fast learner. We corrected several errors in a dictated document, then ran the same raw voice file through again; the software didn't make the



Dragon NaturallySpeaking Mobile

VERDICT An easy way to dictate documents while on the move.

PROS Sleek design; accurate.

CONS Static-filled playback; less than foolproof setup.

\$249 est. street price / Dragon Systems / (800) 437-2466 / InfoLink No. 760



Remind Me
Later Dragon Systems' \$249 NaturallySpeaking Mobile records what you say, then plugs into your PC for quick, accurate transcription.

same mistakes the second time around.

Connecting the recorder to your PC is relatively painless—just plug it into a serial port. The drawback, of course, is that you need an available port, so prepare to say *sayonara* to a modem or scanner.

Dragon NaturallySpeaking Mobile is a sleek alternative to lugging a laptop or scribbling notes to yourself, and it costs just \$249. Garrulous road warriors will wonder how they lived without it.

E-mail Everywhere

If you've got an e-mail addiction, PocketScience has a new service to feed your habit. Dubbed PocketMail, it lets you send and receive unlimited text-only e-mail from almost any telephone for just \$9.95 a month.

We reviewed two PocketMail gadgets, JVC's \$99 HC-E100 and Sharp Electronics' \$149 TelMail TM-20. Both devices sport tiny keyboards and low-resolution grayscale screens—tedious to work with, but adequate for quick, short e-mail messages. For sending and receiving e-mail, each device also includes a built-in modem and a speaker/microphone that you hold up to a telephone after dialing PocketMail's toll-free access number. Digital and PCS phones aren't supported.

Send and receive e-mail from almost any telephone—without wires. By Rich Schwerin



Mobile Mail Check your e-mail without loading Windows: PocketMail devices from JVC (left) and Sharp let you take it on the road.

Messages of 100 or fewer characters transmit in a matter of seconds. Longer messages can take several minutes, but given the keyboard, you won't waste time composing long e-mails anyway (the limit for sending and receiving is 4,000 characters).

Forwarding other e-mail to your PocketMail address is easy to automate, and smart filtering and blocking save time and screen out spam.

PocketMail is a great service for true e-mail addicts, and a bargain compared with Motorola's \$399 PageWriter,



JVC HC-E100

VERDICT E-mail on the go, but not without drawbacks.

PROS Interesting e-mail service; less expensive than Sharp's TelMail.

CONS Tiny keyboard; proprietary OS.

\$99 plus \$9.95 per month for PocketMail service / JVC / (800) 526-5308 / InfoLink No. 761



Sharp TelMail TM-20

VERDICT Same problems as the JVC HC-E100, for \$50 more.

PROS Same e-mail service on the go.

CONS More expensive than JVC's HC-E100; tiny keyboard; proprietary OS.

\$149 plus \$9.95 per month for PocketMail service / Sharp Electronics / (800) 237-4277 / InfoLink No. 762

a two-way paging device with limited wireless coverage. But until PocketMail works with the Palm and/or Windows CE platforms, most mobile e-mailers are better off waiting. Watch for PocketMail to work with other devices later this year.

We could tell you lots of nice things about

CANVAS™ 6.

"The program's best features spring directly from Canvas's signature strength - the marriage of bitmap and vector technology... Deneba's SpriteLayers technology lets you create some interesting transparency effects that would be difficult if not impossible to make in a dedicated drawing program... We were also impressed by Canvas's new face lift, which helps your workspace stay better organized and perform more efficiently... In the competition of the graphics titans, Canvas 6 is fighting with a unique set of weapons."

Macworld — Feb., 1999

"With it's elegant interface, Canvas is a compelling alternative to suite-based solutions that require separate illustration and image editing programs to perform the same functions... Canvas has always performed well with technical illustrations, featuring extraordinary dimensioning capabilities and numerous precision drawing aids... The program warrants serious consideration from newcomers seeking an elegant and relatively inexpensive tool."

PC Magazine — Jan., 1999

"SpriteLayer technology represents an industry breakthrough because it allows users to apply an unlimited variety of compositing effects to any type of object or group of objects... [SpriteLayer] technology is an excellent piece of programming wizardry. With it, designers can easily experiment with complex graphic ideas that would have been prohibitive or impossible in any other program... Deneba has given designers a creative tool that makes it more convenient than ever to play around with any and all of their graphic elements in one place."

Digital Design & Production —

Jan./Feb., 1999

"Canvas 6 is sure to please faithful users..."

My favorite feature is Canvas's new SpriteLayer technology, which allowed me to control the transparency of any graphical object, text, photo, or vector illustration... Canvas continues to deliver a vast scope of graphics tools in one convenient application, and does a remarkable job of breaking down barriers between bitmap and vector graphics."

PC World Online — Dec. 28, 1998

But everyone else beat us to it.

"Deneba has done what Adobe has refused to do: unify graphics apps... The vector abilities are very robust. Canvas has all the

tools you'd expect of an illustration app, with bonus widgets thrown in. Canvas 6.0's unique ability to combine disciplines will lead the designer down previously inaccessible creative paths... SpriteLayers composite like no other program can."

Maximum PC — Jan., 1999

"Version 6 has dramatically improved the software's interface, significantly increased user customization and added lots of useful features... Canvas 6 delivers power and versatility at a competitive price."

eMediaweekly — Jan., 1999

Find out for yourself why everyone's talking about Canvas 6 and the revolutionary new SpriteLayer technology. Visit www.deneba.com/pccomp/ to download a **FREE** fully functional 30-day evaluation kit. The graphics revolution is here, and it begins with Canvas 6.

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This ad was created and color separated using nothing but Canvas 6.

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Infolink 377 at: www.pccomputing.com/infolink

Home Networks That Don't Hurt

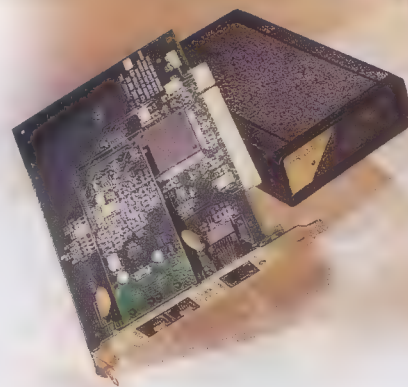
Low-cost LANs enter your home sweet home.

By Lee Hulseworth and T. J. Lee

Have you ever wished your computers at home were networked like the ones at your office? The trick is getting your home wired so you can connect your PCs and share that ISDN connection or color printer, or maybe play a quick game of Doom before supper. The good news is your home is already wired. Electrical wires connect outlets in every room, and your telephone jacks are connected to each other as well. With two new networking products you can use this existing wiring to turn your home into a LAN.

The \$199 Intelogis PassPort Plug-In Network uses the 110-volt power outlets in your house as network connections, giving new meaning to Plug and Play. The \$199 Tut Systems HomeRun network cards let you connect your PCs over the telephone wiring in your walls. Together they give you two different approaches to creating a home LAN without ever stringing a cable.

Electrifying The PassPort Plug-In Network from Intelogis comes with two PC modules and one for your printer. The modules plug directly into electrical outlets and connect to your PC's or printer's parallel port.



Share Everything You're running out of excuses for not networking your small office or home office. Tut Systems' HomeRun (left) and Intelogis's PassPort make it easy and affordable.

Once connected, the modules recognize each other automatically. Setup's a snap using PassPort Administrator software that lists all the devices connected to the PassPort modules. Since any outlet on the wiring between you and the nearest transformer can connect to your network, the PassPort lets you set up secure networks and limit who is part of your group.

The PassPort supports Windows user-level security, and you can share devices connected to your PC, such as a local printer. You don't need to connect printers plugged into the PassPort printer module to any PC.



Phone Home? Tut Systems' phone-wire solution makes for a more involved installation, as you must install a HomeRun network card into an available PCI slot in each PC you're connecting to the network. However, it boasts better bandwidth, up to 1Mbps vs. PassPort's 350Kbps.

Each card plugs right into your telephone jacks, and they communicate over your wiring without disrupting normal phone operation. (You can make calls while copying files between computers.)

The HomeRun cards also sport an RJ-45 Ethernet port, which allows them to connect to a network over traditional 10Base-T (twisted-pair Ethernet) wiring as well. This gives the HomeRun cards added flexibility should you want to connect to a traditional network. Windows 98's New Hardware Wizard installs the correct HomeRun drivers automatically,



Tut Systems HomeRun

VERDICT Not afraid of installing a network card? Here's the high-speed home network you want.

PROS Uses your home's phone wiring.

CONS Complicated setup.

\$199 for NIC, \$249 for adapter, direct prices / Tut Systems / (800) 998-4888 / InfoLink No. 763



Intelogis PassPort

VERDICT If you can plug something into an AC outlet, you can set up a network.

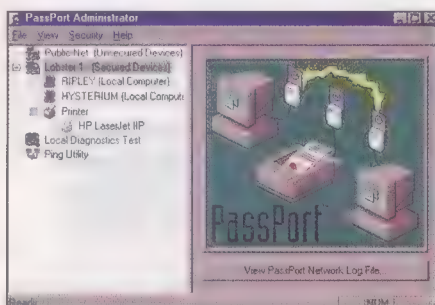
PROS Easy installation.

CONS Slower than HomeRun.

\$199 est. street price (2 PC plug-ins, 1 printer plug-in) / Intelogis / (888) 756-5199 / InfoLink No. 764

although you will need to switch the network cards between phone wiring and 10Base-T manually.

Bottom line: The Intelogis PassPort is an easier—albeit slower—choice for basic home networking. However, Tut Systems' HomeRun boasts better bandwidth, and the company is working on an external version that won't require you to crack open your computer to install it. Also, 3Com, Compaq, and Intel have licensed the HomeRun technology and should have kits available soon. An upcoming wireless contender: Diamond Multimedia's HomeFree.



A Network Manager You'll Like
The PassPort's Administrator view gives you quick access to information and diagnostics.

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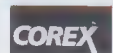
SOLUTIONS

Organized mobility

Things can get hectic out there on the road, but you can trust your CDW account manager to help lighten your load. If you need a multi-purpose machine for your mobile lifestyle, the IBM® ThinkPad® 600 is what you're looking for. Featuring a 300MHz Intel Pentium® II processor, 64MB RAM, a 6GB hard drive, and a 13.3" active-matrix display, this powerful little notebook really packs a punch. It includes an internal DVD-ROM drive and a 56Kbps modem to keep you connected. A notebook case from Targus is the perfect way to carry and protect your notebook. Because you meet hundreds of people a year, you'll need a fast and easy way to keep track of all their business cards, and the Corex CardScan™ Executive scanner can do just that. Symantec's ACT! V4.0 will help keep your addresses and phone numbers organized. Call CDW today for all your mobile needs.

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CDW 19486



**ACT! V4.0
Organize contacts**
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CDW 107663



**ThinkPad®
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CDW 129951



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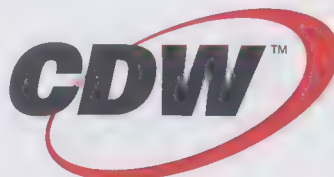
1604 Router
\$1296.08
CDW 86882

Your CDW network account manager knows that staying connected is the key to survival in today's world. The Compaq ProLiant 400 Server combines the latest Intel Pentium® II processors with 100MHz Front Side Bus technology (FSB) and an integrated Wide-Ultra2 SCSI controller to offer performance suitable for a variety of applications. With six total expansion slots and optimum upgradeability in RAM and internal storage, the ProLiant 400 provides the flexibility to grow and protect your IT investment. Cisco's 1604 router connects small offices with Ethernet LANs to the Internet and company intranets. Try 3Com's SuperStack II Switch 3300 with its matrix port for high-speed connections between switches. CDW can provide you with these, and many other network solutions.

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ProLiant 400

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CDW 141339



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Infolink 144 at: www.pccomputing.com/infolink

Ultimate Small-Office Wish List

Upgrade your business with notebook PC gadgets, live chat, and a high-class phone. Plus: the end of your VCR's flashing 12:00. Edited by Rich Schwerin

Gravis Stinger Laptop Game Pad ★★★★★

\$39 est. street price / Advanced Gravis Computer Technology / (800) 280-8318 / InfoLink No. 774

Your laptop isn't just for work, you know. Take a game break and bring along the new Gravis Stinger, a light, compact game pad for notebook PCs. And control freaks, take heart: Stinger sports full 360-degree directional control for maneuvering your way out of sticky gaming situations. Plus, 10 programmable buttons let you customize your cheat codes and favorite moves.



Canon USA C LBP 460PS ★★★★★

\$2,995 est. street price / Canon USA / (800) 652-2666 / InfoLink No. 775

Yes, a high-performance color laser printer is within your price range, and Canon's new C LBP 460PS proves it with brilliant 600-dpi output at 4 ppm. With a new engine and a Fiery X2e EFI controller, it's network-ready and includes everything you need to start printing right out of the box. You'll enjoy crisp, vivid output without fancy paper.

Polycom SoundPoint Pro ★★★★★

\$249 est. street price / Polycom / (800) 765-9266 / InfoLink No. 783

Your business phone is your lifeline, so don't cut corners with some low-grade, low-cost telephone. Get



Polycom SoundPoint Pro and enjoy crystal-clear multipoint audioconferencing.

They'll still know they're on speakerphone, but at least with SoundPoint

Pro's hands-free full-duplex design, you'll communicate without interruption. The trick? Get your bean counter to shell out \$250 for a two-line phone (\$300 for the three-line version).

Smith Micro Software Internet CommSuite ★★

\$69 est. street price / Smith Micro Software / (800) 964-7674 / InfoLink No. 777

Just when you thought the market for all-in-one Internet utility suites was dried up, along comes Smith Micro Software with Internet CommSuite. This suite packs more than a half-dozen Net-related apps, including multimedia e-mail; Internet fax, chat, phone, and videophone; whiteboard; and online gaming. But before you blow 69 bucks, consider all the extras you get for free with Microsoft Internet Explorer and Netscape Communicator.

Canon Software Publishing OfficeReady ★★★★★

\$40 est. street price / Canon Software Publishing / (714) 438-3000 / InfoLink No. 778

Canon's OfficeReady is a collection of ready-to-use templates for Microsoft Word, Excel, and PowerPoint. With smart color schemes and fonts, it's easy to look like a pro.

Enfish Tracker Pro ★★★★★

\$80 est. street price / Enfish Technology / (888) 222-3634 / InfoLink No. 779

Where the heck did you put that data? It must be on your system somewhere. Or maybe on the network. Or was it on the Web somewhere? Find out with Enfish Tracker Pro, an information tracker that's part PIM/organizer, part index/database, and part search engine/summarizer. It keeps an eye on the work you do on your PC—and keeps you organized.

Lotus Sametime 1.0 ★★★★★

\$5,000 est. street price / Lotus Development Corp. / (800) 343-5414 / InfoLink No. 780

A long-standing weakness of most groupware products has been the inability to communicate in real time. New from Lotus, however, is Sametime, a real-time collaboration, whiteboard, and chat system that works with your Notes 4.6 or 5.0 server, or on its own. Best perk: It looks shockingly similar to a free program called ICQ.

APC SurgeArrest ★★★★★

\$30 list price / American Power Conversion / (800) 877-4080 / InfoLink No. 781

Why risk zapping your notebook PC with a power surge or spike? At just 8 ounces, APC's SurgeArrest is a tiny way to insulate your portable from AC power anomalies. SurgeArrest also prevents digital phone lines from frying your modem—all for only 50 bucks.



Digital Delivery Confidential Courier 2.1 ★★★★★

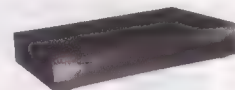
\$2,995 est. street price / Digital Delivery / (800) 782-9682 / InfoLink No. 782

Just because you're paranoid doesn't mean they aren't after your data. Digital Delivery's new data encryption tool is extremely feature-rich and monstrously complex. For bulletproof security at any price, it's worth a look.

Replay Networks ReplayTV ★★★★★

Starts at \$699 est. street price / Replay Networks / (800) 266-1301 / InfoLink No. 776

Once and for all you can kill your VCR and its incessantly flashing 12:00 with Replay Networks ReplayTV, a digital recorder that automatically finds, captures, and stores up to six hours of TV programming for playback. And since it's all digital, it's a lot faster than that 20-year-old VHS tape technology you're using.





Q

You want to e-mail.
He needs to download.
She'd like to surf.
Who will be left standing?





Peace, harmony, and multiple Internet access. Signs of a happy household.

It happens to the best of families. They get a computer or two (or three). They discover the Internet. And then they drive each other completely and utterly insane. "It's my turn to go online." "No, it's my turn." "Is not!" "Is too!" Was this what the Internet promised? The people at Compaq don't think so. Which is why we created these new Compaq Presario 5600i Series Internet PCs. They're the first computers to offer Home Phoneline Networking.¹⁰ This amazing little innovation lets you plug your family's PCs into existing phone jacks, so you can all surf the Net at the same time, using the same phone line! So while Dad e-mails his college roommate, the kids can visit their school's Web site. You can also share printers, transfer files, and even play games with each other. And there's more, like one-touch Internet access and



PRESARIO 5600i-450 with Home Phoneline Networking¹⁰

Intel Pentium II Processor, 450 Mhz > 128 MB Synchronous DRAM expandable to 384 MB
 > 13.0 GB UltraDMA Hard Drive¹ > 6X DVD ROM Drive² > 2X AGP Graphics w/
 8MB SGRAM > Aureal 8820 PCI Audio Card > 1.5Mb Max Digital Modem³
 JBL Pro Speakers > Digital Creativity Imaging Center⁴ > 10 Mbps Ethernet Port,
 Cable Modem Ready > Home Phoneline Networking¹⁰ for 2 computers**
 Microsoft[®] Featured Home Collection + MS Word > Microsoft Windows[®] 98
 > Compaq V720 17" Monitor (15.9" VIA)

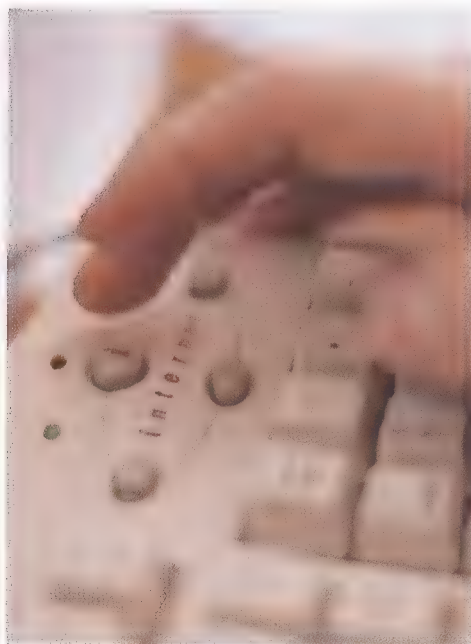
\$2,199

50 free hours on the Net*. Plus, these PCs are available with a 1.5Mb Max Digital Modem³, which works with your 56K dial-up access sources for incredibly fast access right away. As an added bonus, it lets you talk on the phone while you surf. And since it's ADSL and cable modem ready¹¹, you can tap into those high-speed technologies as soon as they come to your area. Of course, these PCs are loaded with all the other features you'd expect from Compaq. Like Intel[®] Pentium[®] II processors, thrilling 3D graphics, DVD or CD-ROM drives, Dolby Digital Surround Sound, and more — all at an incredible value. So now, your family can e-mail, download, and surf in a whole new way: peacefully.



HOME PHONELINE NETWORKING¹⁰

An amazing little innovation that lets everyone in the house connect to the Web and to each other — all at the same time.



RECENT COMPAQ AWARDS

- **PRESARIO 5600** — July/August 1998, **FAMILY PC**, Family PC, Recommended Award
- **PRESARIO 5600** — August/September 1998, **WINDOWS MAGAZINE**, WIN List
- **PRESARIO 5600 SERIES** — June 1998, **BOOT MAGAZINE**, Kick-Ass Product
- **PRESARIO 1600** — October 1998, **EQUIP MAGAZINE**, 5-Star Rating and Best Overall Notebook Award
- **PRESARIO 5600** — November 1998, **PC COMPUTING MAGAZINE**, 1998 Most Valuable Product Award

COMPAQ PRESARIO 5600i-450

COMPAQ PRESARIO 5600i-450

Base price includes:

Intel® Pentium® II Processor, 450 MHz	Intel Pentium II Processor, 450 MHz
128 MB SyncDRAM expandable to 384 MB	128 MB SyncDRAM
16.8 GB UltraDMA Hard Drive ²	16.8 GB UltraDMA Hard Drive ²
6X DVD-ROM Drive ³	6X DVD-ROM
2X AGP Graphics w/8 MB SGRAM	Diamond Viper 550 AGP
Aureal 8820 PCI Audio Card	Diamond Monster Sound
1.5Mb Max Digital Modem ⁴	1.5Mb Max Digital Modem ⁴
JBL Pro Speakers	JBL Pro Studio Speakers
Digital Creativity Imaging Center ⁵	Digital Creativity Imaging Center ⁵
10 Mbps Ethernet Port, Cable Modem Ready	10 Mbps Ethernet Port
Iomega Zip Built-in™ Drive	Microsoft Office 97 Small Business Edition & Windows [®] 98
Microsoft® Office 97 Small Business Edition & Windows [®] 98	Microsoft Windows 98
Presario FP700 Flat Panel Monitor (15.0" VJA)	Compaq V910

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\$2,499

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Diamond Viper 550 AGP w/16 MB SDRAM: Add \$70	JBL Pro Studio Speakers: Add \$100
Diamond Monster Sound MX300 PCI Audio Card & JBL Pro Premium Speakers w/Subwoofer: Add \$89	Presario FP700 Flat Panel Monitor: Add \$445

Fast Internet access

COMPAQ PRESARIO 1900-366

COMPAQ PRESARIO 1900-366

Base price includes:

Intel Pentium II Processor, 366 MHz	Intel Pentium II Processor, 366 MHz
13.3" TFT Active Matrix Display	13.3" TFT Active Matrix Display
128 MB SyncDRAM expandable to 192 MB	128 MB SyncDRAM
6.4 GB UltraDMA Hard Drive ²	6.4 GB UltraDMA Hard Drive ²
2nd-Generation DVD-ROM Drive ³	2nd-Generation DVD-ROM Drive ³
256-bit AGP Accelerated Graphics w/2.5 MB VRAM	256-bit AGP Accelerated Graphics w/2.5 MB VRAM
56K ITU V.90 Modem ⁴	56K ITU V.90 Modem ⁴
Smart Lilon Battery	Smart Lilon Battery
256 KB Integrated "On-chip" cache	256 KB Integrated "On-chip" cache
External Iomega Zip Drive	MS Office 97
Microsoft® Office 97 Small Business Edition & Windows [®] 98	Microsoft Windows 98

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\$3,299

Personalize with these options:

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All prices shown are Compaq Direct selling price. Prices shown do not include applicable sales tax and shipping. Products and prices valid in the U.S. only. Actual retail price may vary. Specifications and prices are subject to change or cancellation without notice. Not all Compaq Presario models are available in all retail stores. ¹⁰50 free hours of Internet Access is chosen from Compaq Internet Setup. The 50 free hours must be used over a 30-day period from initial setup. A valid credit card is required to initiate service, although no charges will be incurred until the 50-hour trial has expired. ²Card for 2nd computer requires open PCI slot. ³Each additional PC must have a network adapter, sold separately. ⁴For hard drives, GB = billion bytes. ⁵ITU V.90 modems are designed only to allow faster downloads from K56flex or V.90 compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 kilobits per second (Kbps), and will vary with line conditions. ⁶24X Max CD-ROM data transfer rates may vary from 1500 to 3600 KB/s. ⁷22X Max CD-ROM data transfer rates may vary from 1800 to 4800 KB/s. ⁸Works with most third-party devices. ⁹The 6X DVD-ROM Drive transfer rate is up to 8115 KB/s compared to 1352 KB/s for 1X DVD-ROM Drives. ¹⁰2nd-Generation DVD-ROM Drives run at a higher maximum transfer rate of up to 2.76 MB/s compared to 1st-Generation DVD-ROM Drives which run at a maximum transfer rate of up to 1.345 MB/s. ¹¹One year parts and labor. ¹²5.0/56K V.90 updates may be

PRESARIO 5600i-450	COMPAQ PRESARIO 5600i-450	COMPAQ PRESARIO 5600i-450	COMPAQ PRESARIO 5600i-400	COMPAQ PRESARIO 5600i-400
Processor, 450 MHz	Intel Pentium II Processor, 450 MHz	Intel Pentium II Processor, 450 MHz	Intel Pentium II Processor, 400 MHz	Intel Pentium II Processor, 400 MHz
RAM expandable to 384 MB	128 MB SyncDRAM expandable to 384 MB	128 MB SyncDRAM expandable to 384 MB	128 MB SyncDRAM expandable to 384 MB	64 MB SyncDRAM expandable to 384 MB
JMA Hard Drive ¹	13.0 GB UltraDMA Hard Drive ¹	13.0 GB UltraDMA Hard Drive ¹	10.0 GB UltraDMA Hard Drive ¹	13.0 GB UltraDMA Hard Drive ¹
Drive ²	32X Max CD-ROM Drive ²	6X DVD-ROM Drive ²	32X Max CD-ROM Drive ²	6X DVD-ROM Drive ²
550 AGP w/16 MB SDRAM	2X AGP Graphics w/8 MB SGRAM	2X AGP Graphics w/8 MB SGRAM	2X AGP Graphics w/8 MB SGRAM	2X AGP Graphics w/8 MB SGRAM
ster Sound MX300 PCI Audio Card	Aureal 8820 PCI Audio Card	Aureal 8820 PCI Audio Card	Aureal 8820 PCI Audio Card	Aureal 8820 PCI Audio Card
igital Modem ³	56K ITU V.90 Modem ³	56K ITU V.90 Modem ³	1.5Mb Max Digital Modem ³	56K ITU V.90 Modem ³
um Speakers w/Subwoofer	JBL Pro Speakers	JBL Pro Speakers	JBL Pro Speakers	JBL Pro Speakers
ty Imaging Center ⁴	Digital Creativity Imaging Center ⁴	Digital Creativity Imaging Center ⁴	Home Phoneline Networking ⁵ for 2 computers**	Home Phoneline Networking ⁵ for 2 computers**
net Port, Cable Modem Ready	10 Mbps Ethernet Port, Cable Modem Ready	10 Mbps Ethernet Port, Cable Modem Ready	10 Mbps Ethernet Port, Cable Modem Ready	10 Mbps Ethernet Port, Cable Modem Ready
ured Home Collection & MS [®] Word	Microsoft Office 97 Small Business Edition	Microsoft Featured Home Collection & MS Word	Microsoft Office 97 Small Business Edition	Microsoft Featured Home Collection & MS Word
lows98	Microsoft Windows98	Microsoft Windows98	Microsoft Windows98	Microsoft Windows98
19" Monitor (18.0" VIA)	Compaq V910 19" Monitor (18.0" VIA)	Compaq V720 17" Monitor (15.9" VIA)	Compaq V720 17" Monitor (15.9" VIA)	Compaq V720 17" Monitor (15.9" VIA)
99	\$2,199	\$1,999	\$1,999	\$1,799
re Networking for 2 computers**	6X DVD-ROM Drive ² Add \$59	Diamond Viper 550 AGP w/16 MB SDRAM: Add \$70	19.2 GB UltraDMA Hard Drive: ¹ Add \$175	6.8 GB UltraDMA Hard Drive: ¹ Add \$89
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0 Flat Panel Monitor (15.0" VIA):	1.5Mb Max Digital Modem: ³ Add \$99	1.5Mb Max Digital Modem: ³ Add \$99	Compaq V910 19" Monitor (18.0" VIA): Add \$170	Diamond Viper 550 AGP w/16 MB SDRAM: Add \$70

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PRESARIO 1900-333	COMPAQ PRESARIO 1900-300	COMPAQ PRESARIO 1900-266	COMPAQ PRESARIO 1600i-366	COMPAQ PRESARIO 1600i-333
Processor, 333 MHz	Intel Pentium II Processor, 300 MHz	Intel Pentium II Processor, 266 MHz	Intel Pentium II Processor, 366 MHz	Intel Pentium II Processor, 333 MHz
ve Matrix Display	13.3" TFT Active Matrix Display	13.3" TFT Active Matrix Display	14.1" TFT Active Matrix Display	14.1" TFT Active Matrix Display
RAM expandable to 192 MB	128 MB SyncDRAM expandable to 192 MB	64 MB SyncDRAM expandable to 192 MB	96 MB SyncDRAM expandable to 192 MB	64 MB SyncDRAM expandable to 192 MB
MA Hard Drive ¹	6.4 GB UltraDMA Hard Drive ¹	4.0 GB UltraDMA Hard Drive ¹	6.4 GB UltraDMA Hard Drive ¹	6.4 GB UltraDMA Hard Drive ¹
n DVD-ROM Drive ²	2nd-Generation DVD-ROM Drive ²	2nd-Generation DVD-ROM Drive ²	24X Max CD-ROM Drive ²	2nd-Generation DVD-ROM Drive ²
celerated Graphics w/2.5 MB VRAM	256-bit AGP Accelerated Graphics w/2.5 MB VRAM	256-bit AGP Accelerated Graphics w/2.5 MB VRAM	256-bit AGP Accelerated Graphics w/2.5 MB VRAM	256-bit AGP Accelerated Graphics w/2.5 MB VRAM
Modem ³	56K ITU V.90 Modem ³	56K ITU V.90 Modem ³	56K ITU V.90 Modem ³	56K ITU V.90 Modem ³
lattery	Smart Lilon Battery	Smart Lilon Battery	Smart Lilon Battery	Smart Lilon Battery
ated "On-chip" cache	256 KB Integrated "On-chip" cache	256 KB Integrated "On-chip" cache	256 KB Integrated "On-chip" cache	256 KB Integrated "On-chip" cache
Small Business Edition	MS Featured Home Collection	MS Featured Home Collection	MS Office 97 Small Business Edition	MS Office 97 Small Business Edition
ows98	Microsoft Windows98	Microsoft Windows98	Microsoft Windows98	Microsoft Windows98
99	\$2,999	\$2,499	\$2,999	\$2,849
JMA Hard Drive: ¹ Add \$350	Port Replicator: Add \$129	6.4 GB Ultra DMA Hard Drive: ¹ Add \$100	192 MB SyncDRAM: Add \$250	192 MB SyncDRAM: Add \$150
on Battery: Add \$129	Extra Smart Lilon Battery: Add \$129	Extra Smart Lilon Battery: Add \$129	2nd-Generation DVD-ROM Drive: ² Add \$149	Executive Carrying Case: Add \$199
ir Notebook Protector: Add \$14.95	Extra AC Adapter: Add \$49	Tripp Lite 140 Watt Inverter: Add \$49.95	Port Replicator: Add \$129	Port Replicator: Add \$129

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 256 KB Integrated "On-chip" cache
 MS Featured Home Collection & MS Windows98
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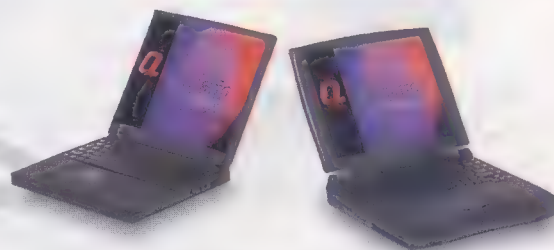
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 13.3" TFT Active Matrix Display
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 Tripp Lite 700 Watt UPS: Add \$189

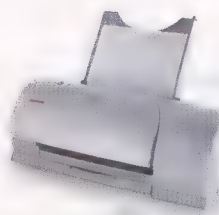
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Organized? Who, Me?

I admit I've missed a few deadlines. No more. My New Year's resolution is that I shall never be late again! (Except for this resolution, which I should have made in January.) I'll need the help of some sort of scheduling-calendar-PIMish sort of thing. I haven't used one before because they required too much attention or were designed in a different time continuum. But surely there's a scheduling tool that does what I want the way I want it.

By Ron White

Sugar Pops ☆☆

The first scheduler out of the modem isn't really right. Popnote is for the person who is more interested in having a pretty collection of refrigerator magnets than in any messages they may hold. Colored squares stud an unobtrusive toolbar. Click on any of them, and you get an electronic sticky note complete with cartoonish or more dignified art. There are supposed to be other features, such as the ability to check e-mail, but whenever I tried experimenting, Popnote proved to have the stability of a Russian nuclear plant. At \$20 (shareware), it's fine for light and cute reminders, but I need more to keep me on track.

POPNOTE

Below and Buried

☆☆

Where Popnote is too little, Above & Beyond is too much. It has every feature you could imagine for a scheduling program. It finds conflicts; prepares time cards; reports on time usage; handles project tracking, group scheduling, e-mail, and world time-zone clocks; juggles appointments for the best fit; includes a provision

for something called "lag days"; and has an even more mysterious "surprise list" feature. The problem is that all these features are put together with the organizing skill of a tornado. By the time I figure out how to use Above & Beyond, my deadlines will be long overdue. The basic shareware version is \$30, but there's a pro version that has everything, including a \$150 price tag. I can get confused elsewhere for way less.

ABOVE & BEYOND

Fits the Bill ☆☆☆

After the overload of sensory data from Above and Beyond, the mere simplicity of a name like Bill's Calendar made me try this program. The program lives up to its moniker—it's a simple, no-nonsense calendar for appointments and to-do's. But while I hate to fuss, Bill's Calendar is not my calendar. It's too simple—pretty much the digital equivalent of a paper calendar. At a shareware price of \$20, it's not bad for everyday appointments. It even has one neat idea I haven't seen elsewhere: the ability to record a voice message for yourself and place it in a certain date. OK, so recording didn't work on my system, but it's good idea, and one that I'll bet shows up soon in commercial programs.

BILL'S CALENDAR

Goldilocks' Revenge

☆☆☆☆

After programs that are too hard or too plain, Amigo-2000 is just right. It lets you add prioritized reminders to a calendar with just a few clicks. The display is easy to read, and I mastered it in less than five minutes. I particularly like the reminder feature that tells you days ahead of time that a deadline's coming. It's not perfect: If a regular deadline falls on a weekend, for



example, there's no way for the program to automatically move it to Friday or Monday. But with a handy search feature and easy setup, it's the program you should look at first before moving on to

TOP 10 DOWNLOADS

Grab these top games from ZDNet Software Library and PC Computing Online at www.pccomputing.com/getnow.

Free Solitaire v2.03 Play eight well-made solitaire games.

Depth Charge—Deep Blue Troubles v1.0 Destroy enemy submarines.

Bubble Puzzle 97 v1.3a Fire colored balls to solve a puzzle.

Jigsaws Galore v2.2 Puzzle with jigsaws until you can't see straight.

Pretty Good Solitaire v2.3 Deal 100 solitaire games ad nauseam.

Starcraft v1.0 Terran-ize the galaxy in your spaceship.

Morejongg for Windows 95 v6.1 Tackle a new version of mah-jongg.

3-D Ultra Pinball: Creep Night Roll your balls on a creepy, extra-wide table.

Microsoft Monster Truck Madness 2 Take control of a monster truck.

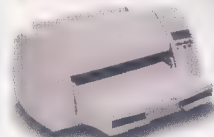
Kyodai v6.42 Master a great-looking mah-jongg game.

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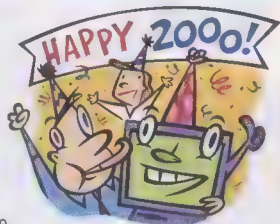
Ron Sequitur

I'm Y2K OK. R U?

☆☆☆

All the schedulers and digital alarms and calendars aren't going to amount to diddly when it's January 1, 2000, if your computer thinks it's just sitting around waiting for electricity to be invented. So will it kill you to download a couple of programs to see if you're millennium-ready? I first tried Millennium Tester on my newest PC—less than a year old. The program, which regales you with animation and music while it tests your system for Y2K foibles, pronounced my PC to be 2000-compliant. Just to be obsessive about it, I also ran Millennium Date Test & Fix. It told me I'd have problems—but only if the system is turned off when the Big Second ticks past. Neither of these free programs fixes anything, but they identify problems, and that's the first step.

MILLENNIUM TESTER, MILLENNIUM DATE TEST & FIX



succeeds quite well through easy controls and a no-frills, gray-is-beautiful look. Not much automation, and it doesn't even come with holidays preloaded, but if you're used to keeping track of your life on one of those desk-blotter calendars, this'll be worth the \$30 registration just so you can use your paper calendar for nothing but mindless doodling.

VISUAL CALENDAR PLANNER

Double Vision ☆☆☆

After writing that bit about Visual Calendar Planner, I loaded Visual Day Planner, made by the same folks. I figured it would be some sort of companion product, with maybe some fancy appointment printouts that fit in one of those giant-wallet-style paper-based organizers. Turns out the program's a prettier version of Visual Calendar Planner that lets you drop icons onto dates. It crashed my PC every time I tried to create a new schedule. If the idea of Visual Calendar Planner appeals to you, but you find its all-encompassing gray look too dreary for words, download this first. You've

got 30 days to find out if the program and your PC get along. If not, its sibling is a good fallback.

VISUAL DAY PLANNER

Oh, Fooey! ☆☆☆

Now, FooBar is what shareware is supposed to be like—idiosyncratic, a bit flaky, but so helpful that you put up with the problems and bugs to get the benefits. FooBar's strip of icons opens up windows to reminders, a calendar, and a to-do list—which take care of many people's needs. But there's more: a task timer for those who bill by the minute. Throw in a stopwatch, contact manager, memory meter, sticky notes, lists of favorite folders, files and programs, and other quick, useful tools, and you have a formidable package for \$30 after 30 days. But then there are frustrating things like frequent crashes whenever I try to use FooBar to read a drive. But it's as useful as the original SideKick was, and could make itself indispensable to you, warts and all.

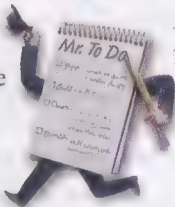
FOOBAR

industrial-strength schedulers. You've got 30 days to play with Amigo-2000 before you decide whether to hand over the paltry \$12 registration fee.

AMIGO-2000

Much to Do ☆☆☆

Someday maybe I'll get to be like other computer writers and hire people to write my stuff for me. That's when I'll need Mr. ToDo. OK, so it's another dorky name, but Mr. ToDo really deserves much ado. It eschews the usual calendar format for a mini relational database of tasks. You can build up tables of task categories and workers to whom a task is assigned. A tabbed interface lets you easily check pending jobs by status, person assigned to them, priority, category, or dates. Mr. ToDo is an excellent choice if tracking minions is more important than tracking appointments on an hour-by-hour basis.



Take 45 days to decide whether it's worth the 25 bucks.

MR. TODO

See Visions ☆☆☆

But you know, I miss not having a calendar view in Mr. ToDo. Don't underestimate the big picture. If you need to see a month in advance, make Visual Calendar Planner your wallpaper. It doesn't purport to be anything other than a better Bill's Calendar, and it

CHAOS THEORY

☆☆☆☆ The first thing Times & Chaos has going for it is a wonderful name.

T&C is more than a scheduler. It's a full-blown information manager that tracks contacts, to-do's, appointments, and your schedule. No learning curve. What you see is what you work with. Sound good? Try it for 21 days to decide if it's worth \$45, then say goodbye to organization woes.

TIMES & CHAOS



"Tired of



Get the speed YOU need.

If you've been holding out for the cable or telephone company to bring high-speed Internet access to your neighborhood, chances are it's been a while. Which is a shame, because if you'd chosen DirecPC, you could be surfing at up to 400 Kbps **right now**. That's up to 14 times faster than a standard 28.8 modem and almost three times faster than an ISDN line.

It's easy.

How do you get started? Just visit us at www.direcpc.com to find a retailer near you. If you can't find a store in the neighborhood, call us at 1-800-DIRECPC. We'll send you your dish, satellite modem, software and everything else you need. We

HARDWARE
AS LOW AS

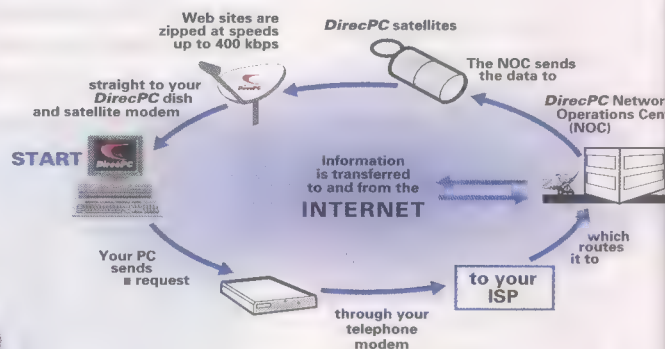
\$199



can arrange professional installation for you, too. Either way, getting started is just a phone call or a mouse click away.

How does it work?

The engineers at Hughes figured out that the real bottleneck in the speed of the Internet wasn't the request **out** to the Web — telephone modems handle that just fine. Everything slows down when the Web tries to use the telephone system to send you **back** the media-rich information you requested. So, we use a much faster satellite connection for sending you the Web content you want. Check out the diagram — this is the system that makes DirecPC the fastest Internet access available nationwide.



waiting?"

DirecPC gets pushy.

Sure, you love the idea of surfing the Web at up to 400 Kbps. But what if you could get your favorite Web sites and Usenet Newsgroups delivered straight into your PC by satellite — **automatically**, without even having to tie up your phone line to ask for them? That's just what DirecPC's Turbo WebCast™ and Turbo NewsCast™ services do — so you're never behind on the news and information that's important to you. The best thing about these two services? They're **free** with your paid subscription to any Turbo Internet™ service package.



SERVICE
AS LOW AS

\$19⁹⁹
MO.

The good news.

No other high-speed Internet access provider offers so much for so little. Take a close look at our service pricing — we're sure you'll find a package you like.

Want TV with that?

We know what you're thinking: "If I'm going to put a dish on my roof, I might as well sign up for one of those satellite TV services, too." We agree! That's why, for a few dollars more, you can upgrade to our DirecDuo™ dish with your DirecPC satellite modem. Add a Hughes-brand digital satellite receiver (or the receiver you already own), and you get almost 200 channels of crystal-clear satellite TV from DIRECTV® as well as Turbo Internet from DirecPC. Just call 1-800-DIRECPC or stop by www.direcpc.com to find out more.



You already know how great the Internet is — you're just looking for a way to go faster. DirecPC is the fastest Internet access available nationwide. It's affordable, and it's available everywhere. So, if you're still plugging away with an old-fashioned telephone modem, you need to ask yourself:

What are you waiting for?

Service Plan Details	Residential		Business
	Executive Surfer	Family Surfer	Office Surfer
Name of Service Plan	Executive Surfer	Family Surfer	Office Surfer
Price of Service Plan (Including ISP)	\$29.99/Month	\$49.99/Month	\$129.99/Month
Price of Service Plan (Without ISP)	\$19.99/Month	\$34.99/Month	\$109.99/Month
Hours of Service (Availability)	24 Hours a Day	24 Hours a Day	24 Hours a Day
On-Line Time (Hours of usage for Turbo Internet)	25 Hours/Month	100 Hours/Month	200 Hours/Month
Additional Hourly Rate (Including ISP)	\$1.99/Hour	\$1.99/Hour	\$1.99/Hour
Additional Hourly Rate (Without ISP)	\$0.99/Hour	\$0.99/Hour	\$0.99/Hour
DirecPC Services			
Turbo WebCast: Broadcast delivery of popular Websites to your PC's hard drive	Included	Included	Included
Turbo NewsCast: Broadcast delivery of up to 30,000 Usenet Newsgroups to your PC's hard drive	Included	Included	Included
Turbo Internet: Fully interactive access to the Internet at speeds up to 400Kbps	Included in Online Time	Included in Online Time	Included in Online Time
Free E-mail Accounts	1	1	4
Networking (Number of Seats)	N/A	N/A	4

1-800-DIRECPC
WWW.DIRECPC.COM



\$199 hardware price after DirecPC rebate. New Credit card customers only. Expires 3/31/99. \$100 rebate posted to credit card upon service activation. 12-month commitment to service required. \$100 cancellation fee charged to credit card if service canceled within 12 months. Cannot be combined with other DirecPC promotions. Executive Surfer and Family Surfer packages for single-user systems only and subject to Fair Access Policy and Subscriber Agreement. Speeds may vary. Not available in Alaska or Hawaii; requires line of sight to the southern sky.
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HUGHES
NETWORK SYSTEMS

INTERNET COMMERCE

a site for this
a store for that
an url for links to other things
maybe
...
isn't there
one online store
that has everything I need
for my business
?




Yes, there is.


*Value*AMERICA

Internet commerce as it was *meant* to be.

IBM. PANASONIC. HEWLETT-PACKARD. COMPAQ. AMANA. KODAK. SHARP. MICROSOFT. SEE ANYBODY YOU RECOGNIZE HERE? WEBER. BRAUN. PHILIPS MAGNAVOX. BUSH. EPSON. FISHER MULTIMEDIA. FUJIFILM. 3COM-US ROBOTICS. TENEX. IBICO. LEXMARK. NOKIA. BOCA RESEARCH. COSCO. ACME UNITED. RAM GOLF. ROLODEX. SANFORD. BRENTHAVEN. DR. SOLOMON'S. DISNEY INTERACTIVE. J. MARTIN YALE. MICROTEK. SAMSUNG. PÜR. MIRIAM WEBSTER. SEAGATE. FILEMAKER. SAUNDERS. READ RIGHT. PULSAR. RAWLINGS CREATIVE. RUBBERMAID. SPECTRACOM. HARTMAN LUGGAGE. GLOBAL. INTUIT. HAMMERMILL PAPER. HOLMES. UMAX. CURTIS MATHESON. HASBRO. ADAPTEC. KWIKSET. SHOPVAC. CHANTAL. PELONIS. MAURICE GERARD. IMATION. HITACHI. WATERMAN. 3DO. GRAPHIC USER INTERFACES. DOREL. ADIDAS. POWER QUEST. SL WABER. MINDSCAPE. ORIGIN. INTERPLAY. ACCO. BLIZZARD. C-PHONE. BIC. GET THE POINT? SMC. BPL. APC. OKI. PERFECT DATA. SEAGATE. SMART MODULAR TECHNOLOGIES. SIERRA. MOBILITY ELECTRONICS. SURVIVOR. PENDAFLEX.

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businesses like yours. You see, we're not an online auction house,  flea market, or factory outlet.


Our range is not  restricted to one or two product categories. We are, rather, a unique and incredibly

broad Internet-based source for business equipment and office supplies. Brick & mortar office-supply

"superstores" may boast of 7,000 products. We have  over four times that—if you don't count the

computers and thousands of consumer products. Our secret (aside from hard work and hot technology) is

our direct  relationship with hundreds of the country's most respected manufacturers: you'll never

again get caught in the gray-market whataya-mean-there's-no-warranty  trap. Our dedicated

team of business-to-business  sales specialists are always there for you. Oh, and one more thing—

Value America's prices: always competitive, often the lowest around, and occasionally downright ridiculous.

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The *Perfect* PC

BY MARTY JEROME



OFFICE WORKHORSE *Page 136*



GRAPHICS POWERHOUSE *Page 138*

Kate Moss is too expensive to model space suits. And a 450MHz Pentium II is too expensive for word processing. Moral: Use the right configuration for the task. This is particularly true now that Windows 2000 is on the horizon. This OS single-handedly vaporizes the good reasons—and weak excuses—you’ve offered for not upgrading to NT. Plug and Play now runs at 64 bits. And with support for AGP, PCI, and

PHOTOGRAPHY BY ERNIE FRIEDLANDER

PROBLEM WINDOWS 2000

IS COMING—CAN YOUR
HARDWARE HANDLE IT?

SOLUTION THE ULTIMATE

DREAM SYSTEMS FOR

HOME, OFFICE, AND

THE ROAD.

for You

USB, installing new hardware takes minutes, not hours and aspirin. Notebooks get true power management and support for hot-swappable PC Cards. Servers accept new network cards and other connections like a panhandler accepts \$20 bills. But for all the finery that Win2000 brings to the office, the OS needs plenty of iron under it. To create the right configuration, you need to devise a strategy. We show you how.



ULTIMATE GAME MACHINE *Page 142*



GROWING NETWORK *Page 144*



IN AND OUT OF THE OFFICE *Page 146*



TRAVELING COMPANION *Page 148*

Office Workhorse

The old rules are dead: If only three years ago you expected to upgrade your current system with the fastest CPU possible, the budgetary Scrooges now force you to entertain other options. For plain-Jane productivity apps, a 350MHz Pentium II gives Windows 2000 plenty of scoot. And with the money you save, you can load up your box with peripherals that will do far more for your productivity than excessive megahertz.

Multiscan Computer Display GDM-200PS

A big screen is both a luxury and a productivity booster. This 17-inch beauty syncs to 1,600 by 1,200 resolution at 70Hz. Colors are rich. Text is crisp. It's a well-deserved indulgence for the eyes.

Sony Electronics /
(888) 476-6972 /
\$600 est. street price /
InfoLink No. 601





HP Vectra VL Series 8 This 350MHz Pentium II spurs business apps as surely as if it were poking them with a cattle prod. Outfitted with a generous 64MB of memory, it costs some \$1,000 less than 450MHz offerings.

Hewlett-Packard / (800) 322-4772 / \$1,434 est. street price

Deskstar 14GXP Web pages, multimedia files, and business presentations will elbow their way into any unclaimed real estate they can find. IBM's 14.4GB hard drive ensures you won't run out of room.

IBM Storage Systems Division / (888) 426-5214 / \$325 est. street price / InfoLink No. 602

Multi Beam 40X Plus No more swearing at dawdling CDs: This drive spins platters at 40X across the entire disc. Plus it costs less than a pair of opera tickets.

Kenwood Technologies / (888) 730-4206 / \$129 est. street price / InfoLink No. 603



Agfa 1212P Banish receipts, old memoranda, and dead reports. Scan them into the Agfa 1212P, then simply store the data on a Zip disk.

Agfa / (888) 281-2302 / \$99 est. street price / InfoLink No. 605



SuperScript 1260 The last time-waster you need is a slow printer. The SuperScript produces crisp 600-dpi output at 12 ppm.

NEC Technologies / (800) 632-4636 / \$599 est. street price / InfoLink No. 606



Back-UPS Pro 650 A UPS pays for itself the first time it's called to duty. None is better than the Back-UPS Pro 650 with its 650VA protection.

American Power Conversion / (800) 877-4080 / \$265 est. street price / InfoLink No. 607

Graphics Powerhouse

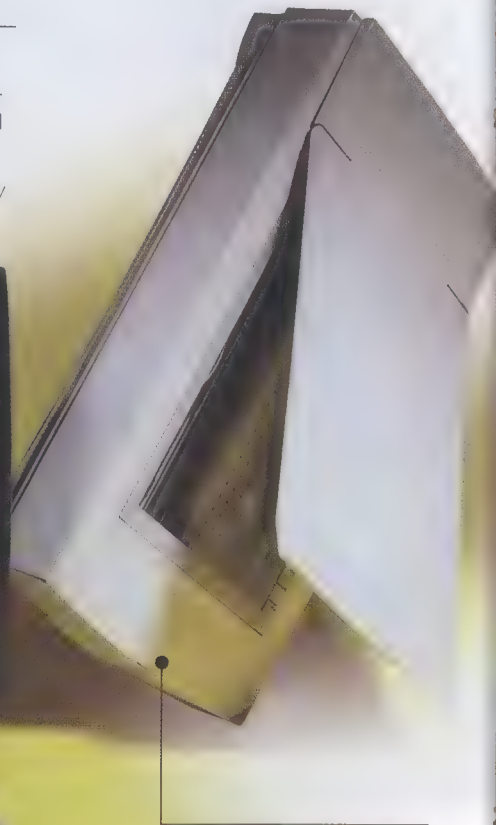
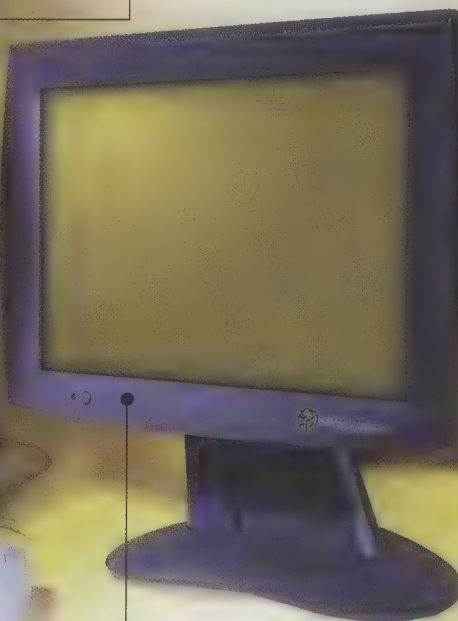
Graphics professionals need only think back to what they *couldn't* do on a PC five years ago to appreciate the Windows 2000 boxes coming to their desks. While technological advances like pole-vaulting leaps in computational power continue, the real revolution in digital graphics has moved to dollar value. Workstations priced at \$50,000 are history. Memory and storage costs have plummeted. And superb, cheap video is the norm.

HP Kayak XU PC Workstation This system will carry you to a new level of power, thanks to its dual Xeon CPUs and 256MB of memory. Its usability is first-rate. And the sky's the limit for expansion.

Hewlett-Packard / (800) 782-0900 / \$6,690 est. street price

Deskstar 25GP Delivering transfer rates that are as fast as or faster than many SCSI hard drives, IBM's Deskstar is cheaper and simpler than fussy SCSI. And if you fill its 25GB, just add another.

IBM Storage Systems Division / (888) 426-5214 / \$549 est. street price / InfoLink No. 608



Revolution IV The 32MB Revolution IV is the graphics performance champ—and it's the only card that will drive the awesome Silicon Graphics 1600SW flat-panel display. You'll love the price too.

Number Nine Visual Technology / (800) 438-6463 / \$149 est. street price / InfoLink No. 609

Silicon Graphics 1600SW Unload 50 pounds or so from your desktop with a flat-panel LCD. The best: SGI's stunning 17.3-inch screen with SuperWide format. It displays supersharp 1,600 by 1,024 resolution.

Silicon Graphics / (888) 744-7373 / \$2,795 list price (including Revolution IV graphics card) / InfoLink No. 610

Expression 636 Artist 2 This scanner elicits envy from artists using lesser gear. It captures images at 600 by 1,200 resolution and renders 36-bit color. It's ideal for graphics, and even text looks great.

Epson America / (800) 463-7766 / \$699 est. street price



Hey, Big Fish — outgrowing your pond?



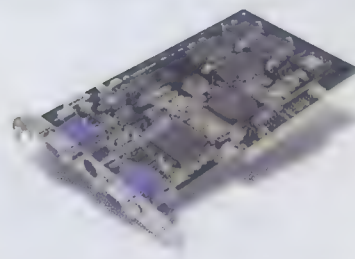
Multiple monitors give you more space.

Appian Graphics is a trademark of Appian Graphics, Inc. Microsoft, the Windows logo and Windows NT are registered trademarks of Microsoft Corporation. All other trademarks are the property of their respective owners.

Thinking about upgrading your monitor? Here's something they didn't teach in school — going from your current 17-inch to a pricey 21-inch is expensive, and it doesn't really give you that much extra room. This is what the smart fish do — get a second 17-inch monitor and use an Appian Graphics card to unite your two screens in a single display. Even figuring the cost of the card and the second monitor, you'll save yourself money. And you'll have a much bigger expanse for you to work and play. Appian Graphics is the leading supplier of multiple-monitor cards, and our products are optimized for Windows 98. To find out more, swim on over to www.appiangraphics.com/outgrowing or call toll-free 1-877-57APPIAN.

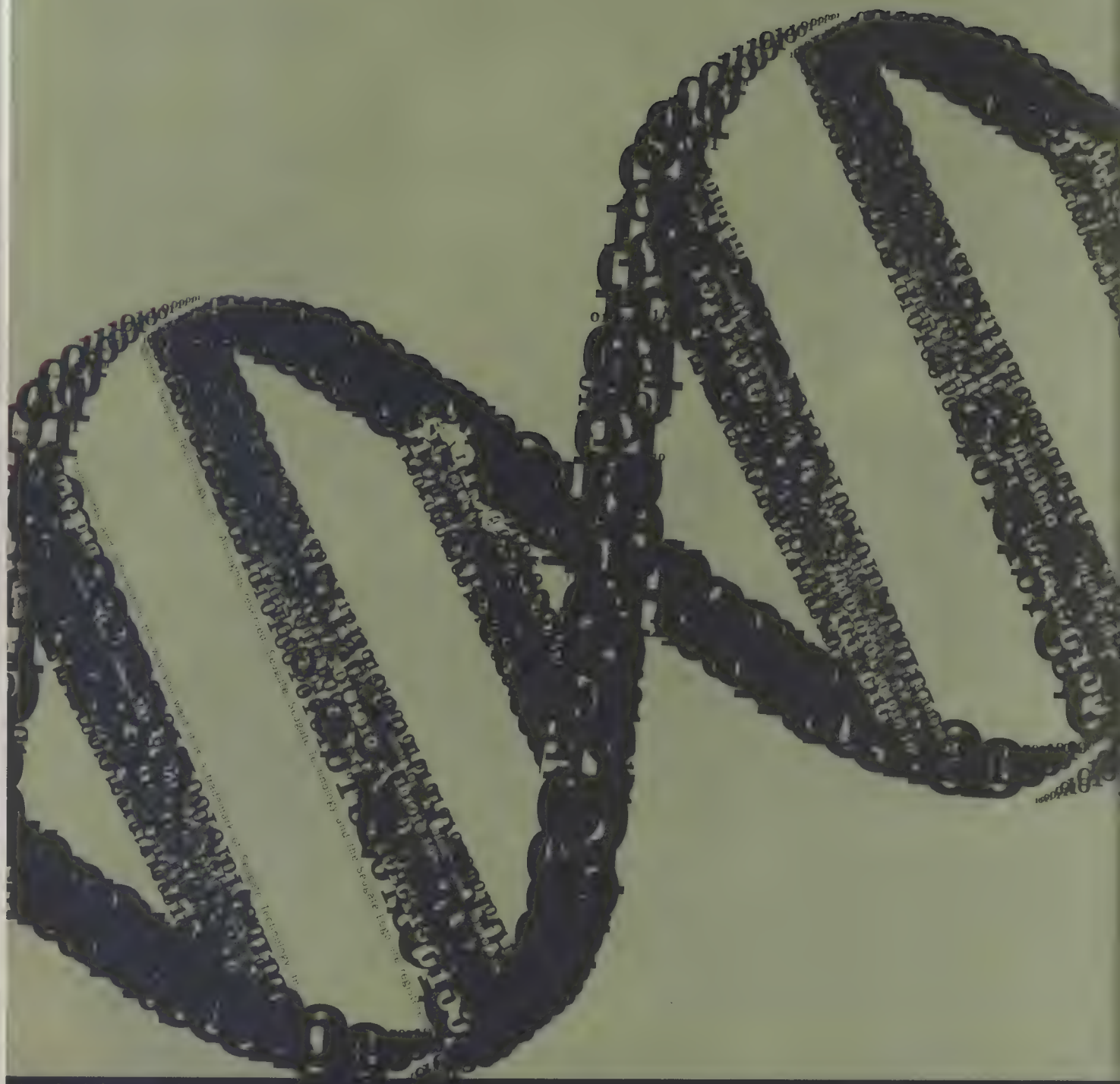
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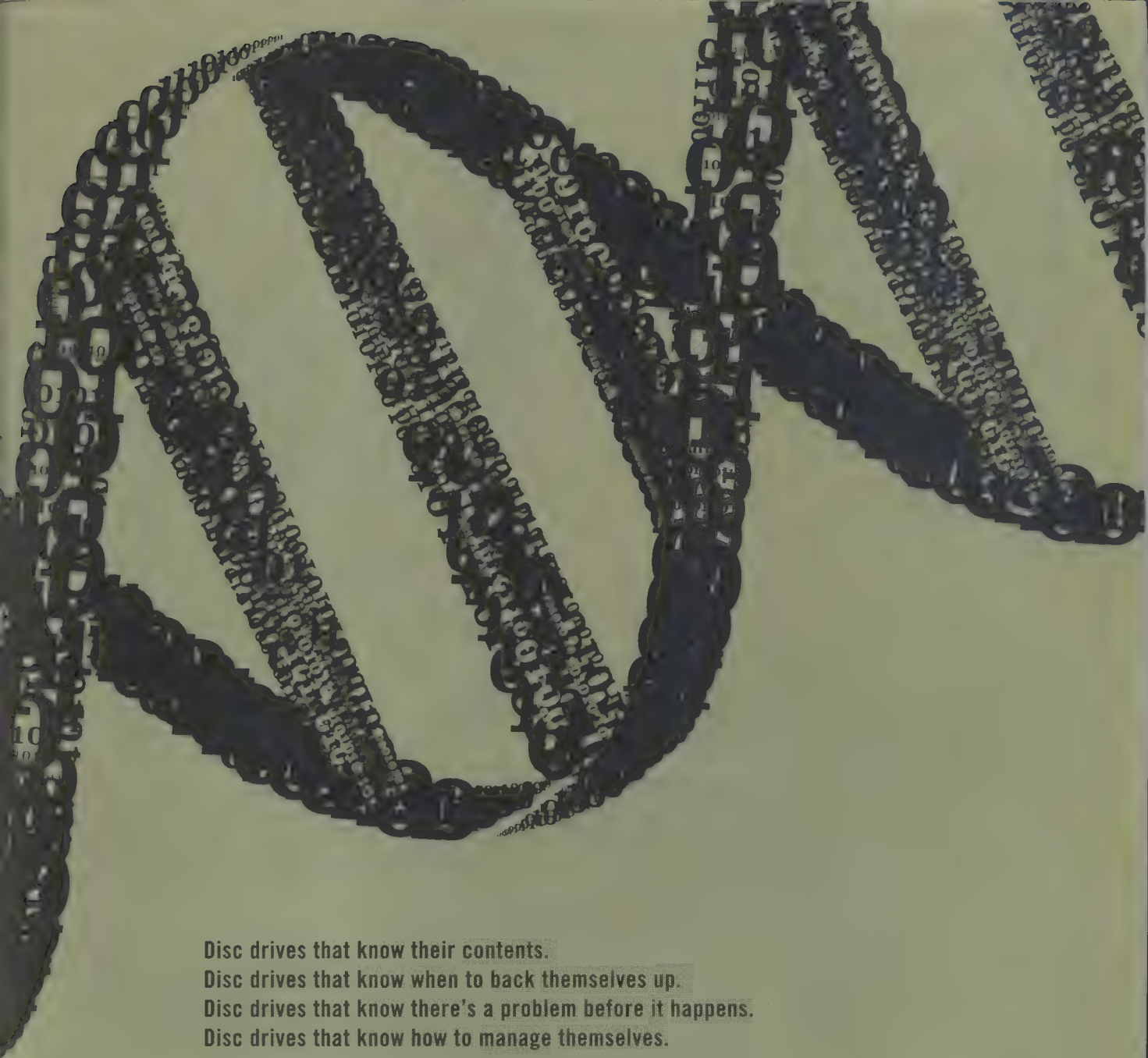
Microsoft
Windows NT
Windows 98



APPIAN
The ideal and more.

Infolink 389 at: www.pccomputing.com/infolink





Disc drives that know their contents.
Disc drives that know when to back themselves up.
Disc drives that know there's a problem before it happens.
Disc drives that know how to manage themselves.

WHAT'S NEXT? DISC DRIVES WITH FEELINGS?

Uh, let us get back to you on that last point. But we're working on the first four. Get ready for disc drives with intelligence. Network-ready Seagate disc drives that can be attached to the network anywhere you want, independent of servers. Fast, reliable drives for manageable, scalable data storage. No matter how fast your network grows, Seagate storage solutions will keep you ahead of the game. Because the future of storage is being built right here. One drive at a time.

For Intelligent Information:  www.seagate.com/dsl

Ultimate Game Machine

Spreadsheet jockeys whine long and loud about their underpowered boxes. But when was the last time they played Unreal or Riven? To do justice to today's best games—teeming with 3-D graphics, animation, and surround-sound audio effects—you've got to have muscle. And a fast CPU is only the cover charge. Video and audio have to be up to snuff too. You're also going to want the right peripherals.

STB BlackMagic 3D Windows needs just one video card, but serious gamers need three. Use the Viper for your core apps, then turn to this pair of Voodoo2-based demons to run your games in high-res SLI mode—the ultimate graphics experience.

STB Systems / (800) 234-4334 /
\$149 each, est. street price /
InfoLink No. 614

Viper V550 Nothing taxes a system like multimedia games. And no component puts more of a lag on performance than a slow video card. Diamond's Viper V550 is the best bet going for both 2-D apps and 3-D games.

Diamond Multimedia Systems /
(800) 468-5846 / \$170 est. street price /
InfoLink No. 613

Sony VAIO PCV-E308DS This 450MHz Pentium II should come with seat belts. It features 128MB of memory, ■ 13.6GB hard drive, and a 5X DVD drive. Unbelievable.

Sony Electronics /
(888) 315-7669 /
\$2,000 est. street price /
InfoLink No. 612

Sound Blaster Live Your system's sound card should make virtual playgrounds richer than real ones. The Sound Blaster's 3-D surround sound has 512 voices. It's as good as it gets.

Creative Labs / (800) 998-5227 /
\$200 est. street price /
InfoLink No. 615

**Multiscan GDM-F500
Computer Display with FD**

Trinitron Cramped views have no place in gaming. Sony's 21-inch GDM-F500 uses flat-panel technology. You'll love its vibrant colors, and there's no pincushioning or distortion whatsoever to mar the perfect image.

Sony Electronics / (800) 352-7669 / \$1,900 est. street price / InfoLink No. 616



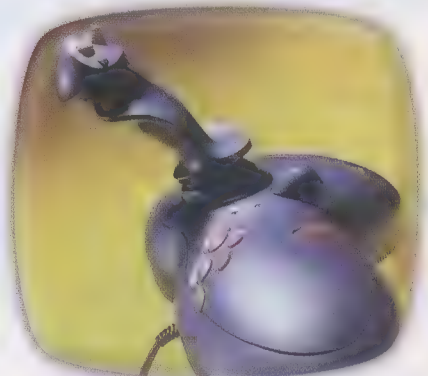
Hughes DirecDuo Speed up those Net games. Get Hughes's DirecDuo, which gives you 400Kbps throughput downstream and 200 TV channels.

Hughes Network Systems / (800) 347-3272 / \$450 est. street price, plus monthly Internet and TV service charges / InfoLink No. 618



Kodak DC260 Zoom Send fellow Web gamers a picture of yourself. Snap it with the Kodak DC260 Zoom, which captures at 1,536 by 1,024 resolution.

Eastman Kodak / (800) 235-6325 / \$899 est. street price / InfoLink No. 619



Wingman Force Immerse yourself in your games with this force-feedback joystick. Nine programmable buttons and an eight-way hat switch cover you for just about anything.

Logitech / (800) 231-7717 / \$130 est. street price / InfoLink No. 620

Growing Network

Perhaps you think of it as nothing more than the glue that binds you to your colleagues. Yet when it heads south, you realize your server is far more than that: custodian of talent, collaborative shepherd, supplier of e-mail. The key to buying the perfect Windows 2000 workgroup server is to find one that—duh—doesn't head south very often. Also, you want one that doesn't waste your time with performance lags when loads get heavy.

Smart-UPS 700 One machine fails and the whole operation stalls—unless you have the Smart-UPS 700. It will keep your workgroup working.

American Power Conversion /
(800) 800-4272 /
\$499 est. street price /
InfoLink No. 625

Snap Server 1.1 Outgrowing the ProLiant 1600's half-dozen hard drives? No problem. Simply plug in the Snap Server to instantly add 8GB (or more, if you like) to your network. Nothing could be easier.

Meridian Data / (888) 343-7627 /
\$995 for 8GB, est. street price /
InfoLink No. 622

Compaq ProLiant 1600 The ProLiant makes haste under any load. Its usability is top of its class. And its reliability goes without saying.

Compaq Computer Corp. / (800) 345-1518 /
\$10,591 est. street price /
InfoLink No. 621

Fast Etherlink XL PCI TX 10/100 Adding NICs to new PCs on the network shouldn't make you growl with frustration. Use the Fast Etherlink XL PCI TX 10/100. It takes longer to say its name than to install it.

3Com / (800) 638-3266 /
\$89 est. street price /
InfoLink No. 623

WebRamp 300e Like traffic cops, hubs and routers perform terribly mundane jobs that are unarguably crucial. The four-port WebRamp 300e's dependability and easy setup make it ideal for workgroups.

Ramp Networks / (888) 726-7638 /
\$499 est. street price / InfoLink No. 624



Trouble mounting?

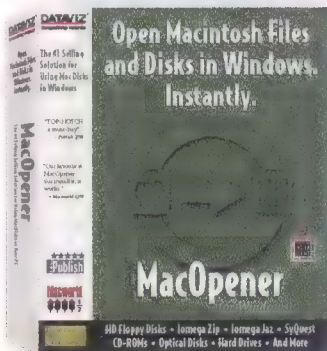
In a world where Windows and Macintosh incompatibility causes endless problems, DataViz offers a little help. MacOpener®. A convenient utility that surmounts all obstacles when your PC needs to read, write and format Macintosh disks.

With MacOpener installed on your PC, reading and writing files on a Mac-formatted disk, cartridge or CD is a breeze. MacOpener lets you open the disk on your PC just as if it were formatted for Windows. You can then view the contents and copy files to and from the disk from any Windows application. MacOpener automatically adds the right PC extension to Macintosh files, so you can launch a Windows application by simply clicking on the file. It even lets you format the Mac disk just as if it were a PC disk. How's that for trouble free performance?

At DataViz, solving PC to Mac compatibility problems is our business. As well as MacOpener, we offer Conversions Plus®, the premier file conversion program that translates hundreds of different file formats between PC applications or Macintosh and PC applications. Quickly and accurately. And offers over 1,000 file translation combinations, to solve almost any file conversion needs.

And discover for yourself that with DataViz, no file compatibility problems are insurmountable.

For answers to all your Mac to PC disk and file compatibility needs, call us at 1-800-270-0030 Ext 155 or visit our web site at <http://www.dataviz.com/pcc>



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Runs on Windows 3.1, Windows 95 & 98, Windows NT.

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Infolink 155 at: www.pccomputing.com/infolink

In and Out of the Office

Who says you have to berth a big, ugly beige box under your desk? And when was the last time you actually used an empty drive bay? Today's top-drawer notebooks give you virtually as much expansion and upgradability as desktop PCs, thanks to swappable drive bays, USB ports, and PC Card slots. The best accept DVD drives, Zip drives, or a second hard drive. Besides that, the whole show travels with you.

Sony GDM-400 PS A 14.1-inch LCD is fine for the road. But for the big picture in the office, you want a 19-inch display. The Sony GDM-400 PS's image is stunning—and you'll love its smart controls.

Sony Electronics / (800) 352-7669 / \$860 est. street price / InfoLink No. 627

Inspiron 7000 A366LT

With Dell's finest, you won't be giving up a thing. The 8.9-pound Inspiron has a 300MHz Pentium II, an 8GB hard drive, and a 15-inch screen. And make sure you opt for the DVD drive.

Dell Computer Corp. / (800) 879-3355 / \$3,549 est. street price / InfoLink No. 626

LaserJet 3100 Two devices, a complete office: Couple your Inspiron with Hewlett-Packard's LaserJet 3100 and you get an excellent—and fast—laser printer, copier, and fax machine.

Hewlett-Packard / (800) 752-0900 / \$699 est. street price

Labtec LCS-1040 Notebook speakers are a horror for sound quality. Labtec's LCS-1040 speakers sing sweetly via a USB port. They produce 10 watts per channel and bypass your notebook's audio circuitry entirely.

Labtec / (360) 896-2000 / \$80 est. street price / InfoLink No. 629

RealPort CardBus Ethernet 10/100+Modem 56

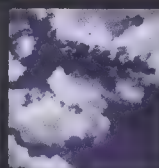
The RealPort ramps your notebook up to the fastest speed your LAN will traffic. And you get a 56Kbps fax modem too.

Xircom / (800) 438-4526 / \$399 est. street price / InfoLink No. 628

**OUR SERVER MEMORY
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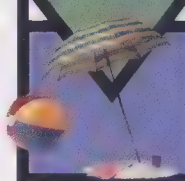
**YOU
PROMISE TO
BE BETTER
NEXT TIME.**



**YOU
COME
BACK AS
SANTA.**



**YOU GIVE THE ELVES
A YEAR OFF
WITH PAY.**



**AND DELIVER
EVERYTHING
VIA THE WEB.**



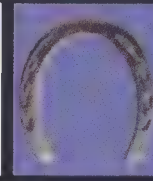
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THE WORLD'S MOST RELIABLE MEMORY.
AT UP TO 50% LESS THAN THE SYSTEM
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than anything you'd find inside
the most mission-critical server.
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chances are it's going to outlive you.
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customized to the requirements of
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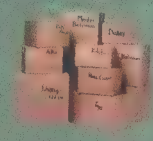
**THE KIDS
MOVE BACK IN.
WITH THEIR
KIDS.**



**YOU BECOME
INTERGALACTIC
HORSESHOE
CHAMPION.**



**YOU
RETIRE
WEALTHY.**



You are born.

START

**YOU
QUICKLY
BECOME
MOBILE.**



**YOU MARRY
THE BOSS'
DAUGHTER...**



**AND HAVE
A FEW KIDS.**



**YOU INVENT THE
"BOGEY-PROOF"
GOLF BALL.**



**THE KIDS
MOVE OUT.**



Traveling Companion

If airport restaurants, jet lag, and vaporized hotel reservations weren't enough to turn travel into torture, there's that 9-pound albatross weighing you down. Or at least there used to be. A new breed of ultralight portables are much more than mere note-takers, schedulers, or e-mail fetchers. They're full-bore productivity machines with big colorful screens, fast CPUs, full-size keyboards, and gobs of memory and hard drive space.

Portégé 3010CT At 2.9 pounds, Toshiba's Portégé 3010CT weighs less than your lunch. And check out its credentials: a 266MHz CPU, 32MB of memory, a 4GB hard drive, and a 10.4-inch active-matrix display. Toshiba / (800) 867-4422 / \$1,999 est. street price / InfoLink No. 631

Canon BJC-50 With your Portégé and Canon's BJC-50 portable printer in tow, your load is still less than many stand-alone notebooks. Print quality is excellent, and it beams print jobs via an infrared port.

Canon Computer Systems / (800) 652-2666 / \$349 est. street price / InfoLink No. 635

StarTac 8000 It weighs less than your wallet and is no bigger than a deck of cards. This phone is the perfect companion to a superlightweight notebook.

Motorola / (800) 331-6456 / \$545 est. street price / InfoLink No. 634

Rex Pro PC-Card Why not lighten your load to a mere 1.4 ounces? At last, the Rex Pro is a better answer than paper for managing your calendar and contacts.

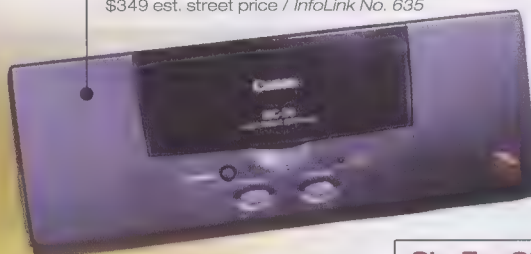
Franklin Electronics Publishers / (888) 739-6400 / \$230 est. street price / InfoLink No. 633

Door-to-Door CoPilot Never lose your way in a rental car again. The CoPilot works with your portable PC. It weighs next to nothing.

TravRoute / (888) 872-8768 / \$199 est. street price / InfoLink No. 636

Seven of Spades Trumpcard Even travel machines need a LAN connection. Nothing beats this 10/100 TX CardBus Ethernet card for a convenient, inexpensive tap into the network.

Ositech Communications / (800) 800-5555 / \$149 est. street price / InfoLink No. 632



Why choose Quantex?



The experts do

"When we replaced our Compaq systems in 1995 with Quantex systems for our executive departments, we not only got fast, powerful, nearly maintenance-free machines, but also dramatically reduced our total cost of ownership. On those rare occasions when we have a service need, the responsiveness of the Quantex staff is incredible. For a business like ours that depends on the uninterrupted flow of information to our customers, Quantex systems deliver everything we expected, and more, at an excellent value."



James Senecal, LAN Specialist, Pacific Life Insurance, Newport Beach, CA.



THE MORE YOU KNOW, THE BETTER QUANTEX GETS.

Quantex's excellent reputation among industry experts and experienced buyers grows stronger by the day. Time after time, the industry's top product reviewers have awarded our systems top honors including "Editors' Choice" and "Best Buy" awards. But when it comes to really knowing what we're about, it's business buyers—like you—who are the real experts. After researching, comparing, and buying Quantex systems, they understand exactly what's reflected in our awards and high industry scores for satisfaction and quality of technical support. In short, they've experienced the satisfaction of owning a Quantex. Still, there are people who don't know that we're one of the world's largest direct marketers of computer systems. After all, it takes time for perception to catch up to reality. So, we'd like to encourage everyone else to get to know us. The sooner the better.

all the time.

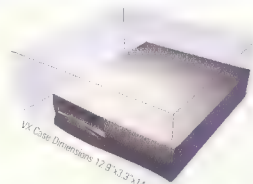
**" Who says business systems have to look boring?
You'll be the envy of the office with the
stylishly curvaceous [Quantex] Slimline next to you."**

c|net Comdex '98 Coverage



INTRODUCING A SMALL AND STYLISH REVOLUTION IN BUSINESS DESKTOP DESIGN—ONLY FROM QUANTEX.

Without sacrificing speed or performance, Quantex VX-Series Slimline PCs pack plenty of raw power and easy, built-in manageability into a small, elegant form factor. Up to 70% smaller than many standard desktops, this full-featured design is configured specifically for businesses and large corporations. Plus, our innovative QSentry Technology and advanced network management features come fully integrated for increased system uptime and reduced cost of ownership.



Using up to 70% less desk space than standard desktops, the Quantex VX-Series will do wonders for all business environments.

INTRODUCING!

Quantex VX-400c \$999

Business lease: \$35/Mo. Order Code #pcc0373

- Intel® Celeron® Processor 400MHz
- 32MB SDRAM Memory / 128KB Secondary Cache
- 4.3GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 15" Digital Monitor (13.8" viewable)
- Intel740 3D 2X AGP Graphics with 8MB SDRAM
- Intel Pro 10/100 PCI Fast Ethernet Controller with RJ-45 and Wake-On-LAN Technology
- New 40X Max Variable Speed CD-ROM Drive
- ESS Solo Wavetable Audio
- Quantex Slimline Case (12.9"x3.3"x14.2")
- 104-Key Keyboard with MS Mouse
- MS Windows 98
- QSentry Technology (Including Intel LANdesk Client Manager)

Quantex VX-400 \$1499
Order Code #pcc0374

Above system with Pentium® II processor 400MHz, 128MB SDRAM, 10.2GB Ultra-ATA HD, and 17" Digital Monitor (15.8" viewable).

INTRODUCING!

Quantex VX-400 \$1999

Business lease: \$70/Mo. Order Code #pcc0375

- Intel® Pentium® II processor 400MHz
- 64MB SDRAM Memory / 512KB Secondary Cache
- 10.2GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- Quantex 15" LCD Flat-Panel Display
- Intel740 3D 2X AGP Graphics with 8MB SDRAM
- Intel Pro 10/100 PCI Fast Ethernet Controller with RJ-45 and Wake-On-LAN Technology
- New 40X Max Variable Speed CD-ROM Drive
- Creative Labs SoundBlaster PCI Audio
- Quantex Slimline Case (12.9"x3.3"x14.2")
- MS Natural Keyboard Elite with MS Mouse
- MS Windows 98
- QSentry Technology (Including Intel LANdesk Client Manager)
- Upgrade to Windows NT 4.0, add \$99



Quantex 15" LCD Flat-Panel



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How would you like For here?

"If you're in the market for a well-equipped
and ready-for-the-future desktop system,
give the Quantex QP6/450 SB-4 a serious look...
few can match the price/performance
ratio offered by this solid PC,
and that's good for your business."

**Computer Buyers Guide
and Handbook (Feb. 99)**



QUANTEX OFFERS THE MOST ADVANCED DESKTOP SYSTEMS WITH THE FASTEST PROCESSORS ON THE MARKET

Equipped with the most powerful Intel® processors available, our Business Desktops give you built-in advanced management capabilities without sacrificing speed. Whether your business is at home or spread across the globe, the enterprise management technology integrated into our Business Desktops will add real value while lowering your total cost of ownership. Built according to industry-standard initiatives such as Wired for Management, DMI 2.0, PC98 and ACPI, these systems incorporate capabilities for improved asset management as well as remote configurations and diagnostics. Plus, our advanced QSentry Technology assures unsurpassed confidence and security at all times by constantly monitoring the health of your Quantex PCs. Why choose between the capacity your business needs and the speed you want, when you can have them both?

Windows® 2000 Ready PC

Quantex's Windows 2000-Ready Business Desktops come installed with Windows NT Workstation 4.0 to protect your technology investment by providing an optimal upgrade path for future hardware advances and the highly anticipated Windows 2000 operating system.

BUSINESS DESKTOPS

QP6/333 SB-1c \$999

Business lease: \$35/Mo. Order Code #pcc0330

- Intel® Celeron® Processor 333MHz
- 32MB SDRAM Memory / 128KB Secondary Cache
- 4.3GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 17" Digital Monitor (15.8" viewable)
- 64-bit 3D AGP Graphics Card with 4MB SDRAM
- Intel Pro 10/100 PCI Fast Ethernet Controller w/RJ-45 and Wake-On-LAN Technology
- New 40X Max Variable Speed CD-ROM Drive
- Quantex ATX Mid Tower Case
- 104-Key Keyboard with MS Mouse
- MS Windows 98
- 3-year limited warranty with 1-year On-Site Service*
- 24-hr./7-day Technical Support
- 2 Universal Serial Bus (USB) Ports / DMI 2.0
- QSentry Technology (Including Intel LANDesk Client Manager)
- Cable Modem Ready / Year 2000 Compliant

QP6/400 SB-1c \$1149 Order Code #pcc0331

Above system with Intel Celeron processor 400MHz, 64MB SDRAM, 6.4GB HD

QP6/400 SB-2 \$1499

Business lease: \$53/Mo. Order Code #pcc0332

- Pentium® II processor 400MHz
- 64MB PC100 SDRAM Memory / 512KB Secondary Cache
- 8.4GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 17" Digital Monitor (15.8" viewable)
- Intel/740 3D 2X AGP Graphics w/8MB SDRAM
- Intel Pro 10/100 PCI Fast Ethernet Controller w/RJ-45 and Wake-On-LAN Technology
- New 40X Max Variable Speed CD-ROM Drive
- Quantex ATX Mid Tower Case
- 104-Key Keyboard with MS IntelliMouse
- MS Windows 98 / Microsoft Office 97 SBE v2.0
- 3-year limited warranty with 1-year On-Site Service*
- 24-hr./7-day Technical Support
- 2 Universal Serial Bus (USB) Ports / DMI 2.0
- QSentry Technology (Including Intel LANDesk Client Manager)
- Cable Modem Ready / Year 2000 Compliant
- Add Business Audio Kit for just \$79
- Upgrade to Windows NT 4.0 Workstation, add \$99

QP6/350 SB-2(w/Pentium II processor 350MHz).....\$1349

QP6/450 SB-3 \$1899

Business lease: \$67/Mo. Order Code #pcc0333

- Pentium® II processor 450MHz
- 128MB PC100 SDRAM Memory / 512KB Secondary Cache
- 8.4GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 17" Monitor w/OSD & NEC ChromaClear CRT (16.0" viewable), 1600x1200 max resolution, 25dp
- Intel/740 3D 2X AGP Graphics w/8MB SDRAM
- Intel Pro 10/100 PCI Fast Ethernet Controller w/RJ-45 and Wake-On-LAN Technology
- New 40X Max Variable Speed CD-ROM Drive
- Quantex ATX Mid Tower Case
- 104-Key Keyboard with MS IntelliMouse
- MS Windows NT Workstation 4.0
- Microsoft Office 97 SBE v2.0
- 3-year limited warranty with 1-year On-Site Service*
- 24-hr./7-day Technical Support
- 2 Universal Serial Bus (USB) Ports / DMI 2.0
- QSentry Technology (Including Intel LANDesk Client Manager)
- Cable Modem Ready / Year 2000 Compliant / Windows 2000 Ready

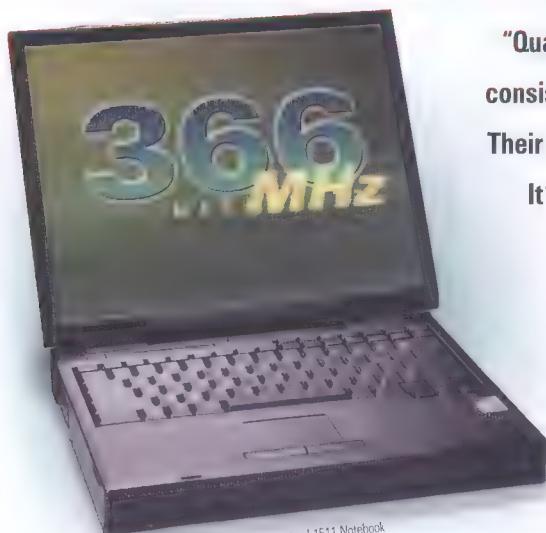
QP6/400 SB-3(w/Pentium II processor 400MHz).....\$1699

QP6/450 SB-4 \$2199

Business lease: \$77/Mo. Order Code #pcc0334

- Pentium® II processor 450MHz
- 128MB PC100 SDRAM Memory / 512KB Secondary Cache
- 13GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- New 19" Monitor w/NEC ChromaClear CRT (18.1" viewable), 1600x1200, 25dp
- New Ultra-Fast #9 Revolution IV 128-bit 3D AGP Video w/32MB
- Intel Pro 10/100 PCI Fast Ethernet Controller w/RJ-45 and Wake-On-LAN Technology
- New 40X Max Variable Speed CD-ROM Drive
- Quantex ATX Mid Tower Case
- 104-Key Keyboard with MS IntelliMouse
- MS Windows NT Workstation 4.0
- Microsoft Office 97 SBE v2.0
- 3-year limited warranty with 1-year On-Site Service*
- 24-hr./7-day Technical Support
- 2 Universal Serial Bus (USB) Ports / DMI 2.0
- QSentry Technology (Including Intel LANDesk Client Manager)
- Cable Modem Ready / Year 2000 Compliant / Windows 2000 Ready
- Upgrade to Sony CD-RW Drive, add \$249
- 124X CD/4X CD-R/2X CD-RW

your desktop? Or to go?



Quantex I-1511 Notebook

"Quantex desktops have continued to exceed our expectations by consistently delivering the latest technology at an outstanding value. Their sales and and tech support people are nothing short of superb. It's only natural - now that we're automating our sales force, we've chosen Quantex notebooks."

Brian Adair, Operations Manager, Dairyland USA Corp., Bronx, NY.

The Quantex I-1511 Notebook—complete with the awesome power of Intel's latest mobile Pentium® II processor 366MHz, an "XX-Large" 15" Active Matrix Display, powerful 128MB of SDRAM, massive 8GB hard drive and sharp ATI 3D AGP Video w/8MB—for the incredible price of just \$3299.

THE NEW INTEL MOBILE PENTIUM® II PROCESSOR 366MHZ PUTS THE POWER OF A DESKTOP RIGHT IN YOUR LAP

Introducing the Quantex I-1511 notebook—powered by Intel's New Mobile Pentium II processor 366MHz. Featuring Intel's new and improved 256K performance enhanced on-die cache technology, it is the fastest, most powerful CPU on the road, and you'll find it in this powerhouse notebook. Known as the world's first "desktop to go," the Quantex I-Series gives you all the bells and whistles you previously had to sit at your desk to enjoy. An enormous 15" Active Matrix display, long-lasting 12-cell Lithium Ion battery, ATI 3D AGP graphics accelerator with a whopping 8MB, and built-in dual bays for simultaneous use of DVD- or CD-ROM and floppy drives...the works. All in a little bundle of power that follows you anywhere. Have a nice trip.



Big On Screen. Small On Price. Quantex I-Series Notebooks are now available with "XX-Large" 15" displays. Check them out starting at just \$2799.

I-SERIES NOTEBOOKS

Quantex I-1400 \$1999

- Business lease: \$70/Mo.** Order Code #pcc0356
- Mobile Pentium® II processor 266MHz
 - New 256K Performance Enhanced On-Die Cache
 - 14.1" XGA Active Matrix Display
 - 64MB SDRAM
 - 4GB Ultra-ATA HD / 56K V.90 Fax/Modem
 - Removable Combo 24X CD-ROM Drive & 3.5" Floppy Drive
 - New ATI Rage Lt Pro 3D AGP Video w/8MB
 - New ESS 3D Wavetable Surround Sound and Speakers
 - New Long-Lasting 12-Cell Smart Lithium Ion Battery
 - USB and Fast IR Ports / Integrated Personal Touchpad
 - MS Windows 98 / Corel Office Suite 8
 - Quantex Carrying Case / Year 2000 Compliant
 - 3-year limited warranty on CPU and Main Memory
 - 1-year parts and labor warranty on all other components
 - Upgrade from 64MB SDRAM to 128MB SDRAM, add \$149
 - Upgrade from 4GB Ultra-ATA HD to 6GB Ultra-ATA HD, add \$129

Quantex I-1411 \$2599

Order Code #pcc0359

Above system with NEW Mobile Pentium II processor 333MHz, 6.4GB HD, Removable 2X DVD-ROM Drive and Microsoft Office 97 SBE v2.0

INTRODUCING!

Quantex I-1511 \$3299

- Business lease: \$110/Mo.** Order Code #pcc0361
- New Mobile Pentium® II processor 366MHz
 - New 256K Performance Enhanced On-Die Cache
 - 15" XGA Active Matrix Display
 - 128MB SDRAM
 - 8GB Ultra-ATA HD / 56K V.90 Fax/Modem
 - Removable Combo 2X DVD-ROM Drive & 3.5" Floppy Drive
 - New ATI Rage Lt Pro 3D AGP Video w/8MB
 - New ESS 3D Wavetable Surround Sound and Speakers
 - New Long-Lasting 12-Cell Smart Lithium Ion Battery
 - USB and Fast IR Ports / Integrated Personal Touchpad
 - MS Windows 98 / Microsoft Office 97 SBE v2.0
 - Quantex Carrying Case / Year 2000 Compliant
 - 3-year limited warranty on CPU and Main Memory
 - 1-year parts and labor warranty on all other components
 - Add Quantex Mini-Docking Station for just \$149
 - Upgrade to Quantex Deluxe Carrying Case, add \$99

Quantex I-1510 \$2799

Order Code #pcc0360

Above system with NEW Mobile Pentium II processor 333MHz, 64MB SDRAM and 6GB Ultra-ATA HD



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VALUE MULTIMEDIA

QP6/400 M-1c \$1099

Business lease: \$39/Mo. Order Code #pcc0305

- New Intel® Celeron® Processor 400MHz
- 64MB SDRAM Memory / 128KB Secondary Cache
- 6.4GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 15" Digital Monitor (13.8" viewable)
- Toshiba MPACT2 3D/DVD Media Accelerator w/8MB SDRAM
- DVD-Ready (for future upgrade to DVD-ROM)
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
- New 40X Max Variable Speed CD-ROM Drive
- SoundBlaster AudioPCI 64V Wavetable 3D Sound
- Altec-Lansing ACS-90 Speakers
- Quantex ATX Mid Tower Case
- 104-Key Keyboard with MS Mouse
- MS Windows 98 / Value Multimedia Software Bundle
- 3-year limited warranty with 1-year On-Site Service**
- Year 2000 Compliant
- Upgrade to 17" Digital Monitor (15.8" viewable), add \$89
- Upgrade to 4.8X DVD-ROM Drive, add \$79

QP6/333 M-1c(w/Intel Celeron processor 333MHz).....\$1049
QP6/350 M-1x(w/Pentium II processor 350MHz).....\$1149

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QP6/400 M-2x \$1499

Business lease: \$53/Mo. Order Code #pcc0306

- Pentium® II Processor 400MHz
- 64MB PC100 SDRAM Memory / 512KB Secondary Cache
- 10GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 17" Digital Monitor w/OSD (15.8" viewable)
- Toshiba MPACT2 3D/DVD Media Accelerator w/8MB SDRAM
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
- 3rd-Generation 4.8X DVD-ROM Drive
- SoundBlaster AudioPCI 64V Wavetable 3D Sound
- Quantex ATX Mid Tower Case
- 104-Key Keyboard with MS Mouse
- MS Windows 98 / Value Multimedia Software Bundle
- 3-year limited warranty with 1-year On-Site Service**
- Year 2000 Compliant
- Upgrade to 17" Monitor w/NEC ChromaClear CRT for \$79
- Optional Internal Zip Drive w/one cartridge, add \$79
- Optional Altec Lansing ACS-251 Subwoofer, add \$39

QP6/350 M-2x(w/Pentium II processor 350MHz).....\$1349

QP6/400 M-3x \$1599

Business lease: \$56/Mo. Order Code #pcc0307

- Pentium® II Processor 400MHz
- 64MB PC100 SDRAM Memory / 512KB Secondary Cache
- 13GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 17" Digital Monitor w/OSD (15.8" viewable)
- Toshiba MPACT2 3D/DVD Media Accelerator w/8MB SDRAM
- Internal 100MB Zip Drive with one cartridge
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
- 3rd-Generation 4.8X DVD-ROM Drive
- SoundBlaster AudioPCI 64V Wavetable 3D Sound
- Altec-Lansing ACS-90 Speakers
- Quantex ATX Mid Tower Case
- 104-Key Keyboard with MS Mouse
- MS Windows 98
- Value Multimedia Software Bundle
- 3-year limited warranty with 1-year On-Site Service**
- Year 2000 Compliant
- Upgrade to 17" Monitor w/NEC ChromaClear CRT for \$79

QP6/350 M-3x(w/Pentium II processor 350MHz).....\$1449

QP6/450 Best Buy \$1999

Business lease: \$70/Mo. Order Code #pcc0308

- Pentium® II Processor 450MHz
- 128MB PC100 SDRAM Memory / 512KB Secondary Cache
- 13GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 19" Monitor w/OSD (18.1" viewable), 1600x1200, 26dp
- Intel740 3D 2X AGP Graphics with 8MB SDRAM
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
- 3rd-Generation 4.8X DVD-ROM Drive
- SoundBlaster AudioPCI 64V Wavetable 3D Sound
- Altec-Lansing ACS-90 Speakers
- Quantex ATX Mid Tower Case
- 104-Key Keyboard with MS Mouse
- MS Windows 98 / Value Multimedia Software Bundle
- 3-year limited warranty with 1-year On-Site Service**
- Year 2000 Compliant
- Optional Internal Zip Drive w/one cartridge, add \$79
- Add Sony CD-RW Drive for just \$299
- (24X CD/4X CD-R/2X CD-RW)

QP6/400 Best Buy(w/Pentium II processor 400MHz).....\$1799

POWER MULTIMEDIA

QP6/350 SM-1x \$1399

Business lease: \$49/Mo. Order Code #pcc0320

- Pentium® II Processor 350MHz
- 64MB PC100 SDRAM Memory / 512KB Secondary Cache
- 8.4GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 17" Digital Monitor w/OSD (15.8" viewable)
- Intel740 3D 2X AGP Graphics with 8MB SDRAM
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
- New 40X Max Variable Speed CD-ROM Drive
- SoundBlaster AudioPCI 64V Wavetable 3D Sound
- Altec-Lansing ACS-90 Speakers
- Quantex ATX Mid Tower Case
- MS Natural Keyboard Elite with MS IntelliMouse
- MS Windows 98
- Power Multimedia Software Bundle
- Microsoft Office 97 SBE v2.0
- 3-year limited warranty with 1-year On-Site Service**
- Year 2000 Compliant
- Upgrade to 10.2GB Ultra-ATA Hard Drive, add \$49
- Upgrade to 3rd-Gen. 4.8X DVD-ROM Drive, add \$79
- Upgrade to Altec Lansing ACS-45.1 PowerCube Speakers with Subwoofer, add \$49
- Optional Internal Zip Drive w/one cartridge, add \$79

QP6/400 SM-2x \$1799

Business lease: \$63/Mo. Order Code #pcc0321

- Pentium® II Processor 400MHz
- 128MB PC100 SDRAM Memory / 512KB Secondary Cache
- 13GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 17" Digital Monitor w/OSD (15.8" viewable)
- New 3Dfx 128-bit Voodoo Banshee 3D AGP Video w/16MB Based on award-Winning Voodoo2 3D Technology
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
- 3rd-Generation 4.8X DVD-ROM Drive
- SoundBlaster AudioPCI 64V Wavetable 3D Sound
- Altec-Lansing ACS-90 Speakers
- Quantex ATX Mid Tower Case
- MS Natural Keyboard Elite with MS IntelliMouse
- MS Windows 98 / Power Multimedia Software Bundle
- Microsoft Office 97 SBE v2.0
- 3-year limited warranty with 1-year On-Site Service**
- Year 2000 Compliant
- Upgrade to Altec Lansing ACS-45.1 PowerCube Speakers with Subwoofer, add \$49
- Optional Internal Zip Drive w/one cartridge, add \$79

QP6/350 SM-2x(w/Pentium II processor 350MHz).....\$1649

QP6/400 SM-3x \$1999

Business lease: \$70/Mo. Order Code #pcc0322

- Pentium® II Processor 400MHz
- 128MB PC100 SDRAM Memory / 512KB Secondary Cache
- 13GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- New 19" Monitor w/NEC ChromaClear CRT (18.1" viewable), 1600x1200, 25dp
- New 3Dfx 128-bit Voodoo Banshee 3D AGP Video w/16MB Based on award-Winning Voodoo2 3D Technology
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
- 3rd-Generation 4.8X DVD-ROM Drive
- SoundBlaster AudioPCI 64V Wavetable 3D Sound
- Altec-Lansing ACS-45.1 PowerCube Speakers w/subwoofer
- Quantex ATX Mid Tower Case
- MS Natural Keyboard Elite with MS IntelliMouse
- MS Windows 98 / Power Multimedia Software Bundle
- Microsoft Office 97 SBE v2.0
- 3-year limited warranty with 1-year On-Site Service**
- Year 2000 Compliant
- Optional Internal Zip Drive w/one cartridge, add \$79
- Upgrade from 13GB HD to 17.2GB HD, add \$99

QP6/450 SM-3x(w/Pentium II processor 450MHz).....\$2199

QP6/450 SM-4x \$2399

Business lease: \$84/Mo. Order Code #pcc0323

- Pentium® II Processor 450MHz
- 128MB PC100 SDRAM Memory / 512KB Secondary Cache
- New 17.2GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- New 19" Monitor w/NEC ChromaClear CRT (18.1" viewable), 1600x1200, 25dp
- New 3Dfx 128-bit Voodoo Banshee 3D AGP Video w/16MB Based on award-Winning Voodoo2 3D Technology
- Internal 100MB Zip Drive with one cartridge
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
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- Quantex ATX Mid Tower Case
- MS Natural Keyboard Elite with MS IntelliMouse
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- Internal 100MB Zip Drive with one cartridge
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
- 3rd-Generation 4.8X DVD-ROM Drive
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QP6/450 SM-4x SE \$2799

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- Quantex ATX Mid Tower Case
- MS Natural Keyboard Elite with MS IntelliMouse
- MS Windows 98 / Power Multimedia Software Bundle
- Microsoft Office 97 SBE v2.0
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Business lease: \$53/Mo. Order Code #pcc0340

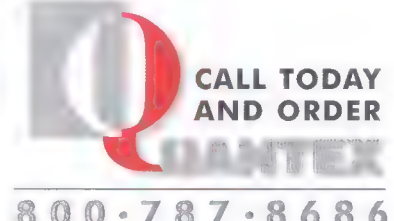
- New Intel® Celeron® Processor 400MHz
- 96MB SDRAM Memory / 128KB Secondary Cache
- 13GB Ultra ATA HD / 3.5" 1.44MB Floppy Drive
- 17" Digital Monitor w/OSD (15.8" viewable)
- Intel740 2D/3D 2X AGP Graphics with 8MB SDRAM
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
- New 40X Max Variable Speed CD-ROM Drive
- Aureal "A3D" 3D Positional PCI Sound
- 3Dfx Voodoo2 based 3D Game Accelerator w/12MB
- MS SideWinder Precision Pro Joystick
- Altec-Lansing ACS-45.1 PowerCube Speakers w/subwoofer
- Quantex ATX Mid Tower Case
- 104-Key Keyboard with MS Mouse
- MS Windows 98 / Value Multimedia Software Bundle
- Activation Game Titles: Battlezone, Heavy Gear
- Interstate 76 w/Nitro Pack
- 3-year limited warranty with 1-year On-Site Service**
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QP6/450 GX-2 \$2399

Business lease: \$84/Mo. Order Code #pcc0342

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- 19" Monitor w/OSD (18.1" viewable), 1600x1200, 26dp
- Intel740 2D/3D 2X AGP Graphics with 8MB SDRAM
- 56K V.90 PCI Fax/Modem* w/Voice Mail and Speakerphone
- Internal 100MB Zip Drive with one cartridge
- 3rd-Generation 4.8X DVD-ROM Drive
- Aureal "A3D" 3D Positional PCI Sound
- New Dual 3Dfx Voodoo2 SLI 3D Game Accelerators w/24MB (2X more powerful than single Voodoo2 accelerator)
- MS SideWinder Precision Pro Joystick
- Altec-Lansing ADA-305 Dolby Pro Logic Surround Sound Speakers w/subwoofer
- Quantex ATX Mid Tower Case
- 104-Key Keyboard with MS Mouse
- MS Windows 98 / Value Multimedia Software Bundle
- Activation Game Titles: Battlezone, Heavy Gear
- Interstate 76 w/Nitro Pack
- Year 2000 Compliant

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The 10 Worst Security

EXPLO

You've heard the horror stories: Webmasters gather and sell your personal info to companies that come after you. Shopping online is like flashing your credit card number on a stadium scoreboard. Your hands are not the only ones reaching into your bank

account. Sending an e-mail message is like sending a postcard, not a sealed letter. If your site hasn't been hacked yet, it's just a matter of time. And even if you avoid the Web altogether, your identity is still up for grabs by anyone with a few bucks and time to spare.

1
Evildoers can steal your identity

2
Web sites sell your personal info

3
Not all online shopping sites are secure

4
Internet scams can hide behind the Web

5
Web merchants can raid your bank account

Risks on the Web

SECURITY!

(and How to Protect Yourself)

Some of these nightmares are true—and they could happen to you just as easily if the Internet didn't exist. The Web merely makes it easier and faster for crooks to get to you. But that doesn't mean you can't use the Web to your personal and business advantage. You just need to know how to

guard your privacy. Whether you've set up shop online, have a company Web site, or simply live and die by e-mail, we show you how to spot the top 10 Internet security risks—and how to avoid them. Link to all these resources at www.pccomputing.com/getnow.

6

Most e-mail isn't private.

7

Enemies can impersonate you using e-mail.

8

Your browser may be selling you out.

9

Internet collaboration may not be safe.

10

Your Web site could be open to invasion.

BY RICK SCOTT

1 Evildoers can steal your identity.

A laundry list of details about you is available to anyone who knows where to look. Your full name, street and e-mail addresses, phone

number, Social Security number, driving record, bankruptcy reports, tax returns—all they need is an Internet connection and, in some cases, a few dollars. And all it takes for someone to steal your identity is a name, address, and Social Security number—easy pickings thanks to Web outfits like A1-Trace USA, the American Information Network, and Discreet Data Systems. These services offer personal info that has long been available to those in the know. The Web just makes it faster and easier to access. To protect yourself stay on guard. When you're on the Web, keep a low profile. Follow our other tips, and watch what you say in newsgroups and public online forums. If you suspect that your identity has been stolen, notify your banks, creditors, credit bureau, post office, and other pertinent agencies. Consumer advocacy groups like the Electronic Privacy Information Center, Privacy Rights Clearinghouse, and the Public Interest Research Group also take complaints and provide help.



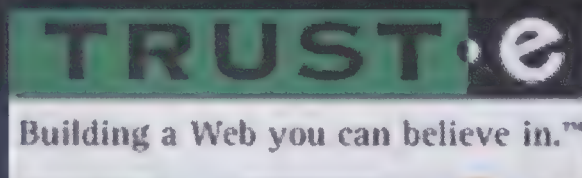
Under Cover Internet services like A1-Trace USA let anyone with \$59 and some time on their hands order a background check with as little as a name.

2

The sites sell your personal info. It's the American way. Amass a group of customers, gather their vital stats on a mailing list; then sell the data to hungry marketers. The Web is no different. But you needn't be at the mercy of marketing sharks. Look for a privacy seal of approval from organizations like Better Business Bureau Online, HonorWeb, or TRUSTe. If you suspect a site has violated its privacy policy, click on the privacy seal and report the infraction to the seal granter. If this doesn't work, report the site to the BBB Online,

Consumer Protection Agency of America, the Federal Trade Commission, Online Privacy Alliance, or the Privacy Rights Clearinghouse. If the Web site has no posted privacy policy, assume that it will shamelessly sell you out. Don't leak your information in the first place. If you don't need to fill out Web forms with complete (or

accurate) info, then don't. If you must give an e-mail address to register to use a site, set up a free Web-based account for that purpose only.



Keep your personal info to yourself by making sure the sites you visit carry a seal of approval from an online security organization like TRUSTe.

3

E-commerce horror stories usually don't involve stolen credit card information. Most

sites offer some type of protection for your sensitive account data. Still, you should always make sure the sites you shop use one of two security methods—Secure Electronic Transaction (SET) or Secure Socket Layer (SSL). Both Netscape Navigator and Microsoft Internet Explorer support these standards (look for an 's' on the end of the <http> in the Web address—<https>—that means you're connected to a secure server). SSL uses encryption to keep your credit card info safe while it's in transit over the Net. SET uses digital signatures to ensure that Internet credit card users and merchants are who they say they are (see "How It Works: SET," A-List, page 66). SET's biggest advantage is that your credit card number is never stored on the merchant's server. But SSL is quite a bit faster and easier for Web sites to set up. Commerce sites should also have firewall protection, which further safeguards any information about you that may be stored on their servers.

Purchasing from a site that uses SET keeps your account info safe from would-be credit card thieves.



playing for profits

ACCPAC® for Windows helped Toymax International, Inc. integrate financial reporting and boost productivity by 90%.



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—Jonathar Muir, Controller, Toymax International, Inc.

What will ACCPAC do for you?

From the Laser Challenge® game system to Spice Girls® figures, business can be fun. Just ask Toymax. Eight years into business, and with almost \$100 million in annual sales, Toymax relies on ACCPAC for Windows for its consolidated financial reporting across its ever-expanding global toy development empire.

With the help of New York-based Pyramid Consulting, Inc., Toymax found that migrating from a DOS-based financial management system to ACCPAC for Windows was child's play. And going public was simplified with ACCPAC for Windows multi-currency and multi-company capabilities. ACCPAC for Windows tight integration with Microsoft Excel resulted in sophisticated, automated financial reporting, easily established audit trails, and customized monthly AP accrual reports, improving productivity at Toymax by a dramatic 90%. And ACCPAC for Windows seamless integration with third party applications has, among other things, significantly helped Toymax save

money and time by tracking the cost of development and manufacturing.

Moving forward, ACCPAC for Windows Common Object Model (COM) support will enable users at Toymax to view and update data using tools such as Visual Basic for Applications (VBA) and MS-Query. And ACCPAC for Windows e-Business application, the e-Advantage Suite™, will make it even easier for customers and vendors to do business with Toymax on the Web in the future. This leads to further improved business processes and enhanced productivity. In fact, ACCPAC for Windows gives Toymax everything it needs to manage the entire financial information flow within the company.

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4 **Internet scams can hide behind the Web.** You've heard about shady e-commerce dealings—auctions that don't deliver the goods, investment tips from 14-year-olds, unauthorized charges, and more. Some of the rumors are true, but you can avoid being victimized. Shop only with reputable Web merchants that offer secure Internet transactions. Unless a Web store tells you otherwise, it must by law deliver your goods within 30 days. *Always* pay with a credit card. You're liable only for the first \$50 in charges if your number gets into the wrong

hands. Don't give out your bank account numbers for any reason (see tip No. 5 for details). Beyond disputing fraudulent charges and complaining to the merchant, you can file a complaint with FTC Consumer Protection, the National Fraud Information Center, or SEC Complaint Center.



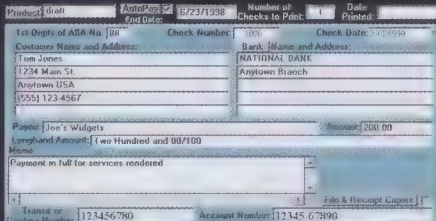
NATIONAL FRAUD INFORMATION CENTER

1-800-876-7060

Web Watchdog The National Fraud Information Center monitors Internet merchants and offers consumer tips.

5 **Web merchants can raid your bank account.** All they need is your account number—no permission required. The most common way merchants get their paws into your coffers is by first not accepting credit cards. Next they ask for your bank account number when you order, ostensibly to verify that you can cover the check. There are even downloadable apps—like Nova Check Mates from ColDen Communications—that help Web stores grab your info. A bank told us that this sneakiness is

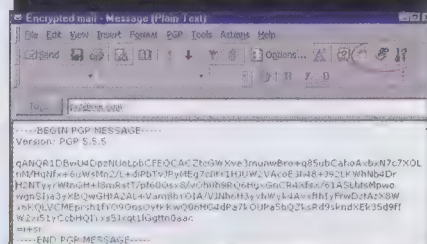
allowed "for the customer's convenience." Yeah, right. Never give out your bank account numbers. If a Web merchant zaps your account, contact your bank immediately. Also file a complaint with the National Fraud Information Center or FTC Consumer Protection.



Blank Check Nova Check Mates lets merchants write themselves checks on you—all they need is your account number.

6 **Most e-mail isn't private.** But you can protect your information, including file attachments. Encryption ensures that only the intended

recipients can read your messages. Digital signatures guarantee that messages come from who they say they're from and no one's meddled with their content in transit. You'll need a



High Security Without a decryption key, no one can read messages you've encrypted with McAfee PGP Personal Privacy.

public key to send encrypted messages; recipients need a private key to decrypt what you send. Use a Pretty Good Privacy app like McAfee PGP Personal Privacy to cover e-mail as well as the files on your hard drive.

PGP Personal Privacy 6.0 / \$29 est. street price / McAfee / (408) 988-3832 / InfoLink No. 673

Enemies can impersonate you using e-mail. It's easier than you think: Someone masquerading as you sends an e-mail message to your ISP administrator that looks as if it came from your account. That person can then request your log-in name, password, and account number. This is possible because most Internet mail exchange is based on Simple Mail Transport Protocol (SMTP), which doesn't support authentication. To keep your e-mail account secure, use PGP encryption and digital signatures. Even better,

prevent an invasion at the source by making sure your ISP forbids direct connections to its SMTP port. Also make sure it uses encryption and authentication and has a firewall in place such as AltaVista Firewall 98 or Check Point FireWall-1.

AltaVista Firewall 98 / starts at \$2,495 est. street price / Compaq Computer Corp. / (800) 344-4825 / InfoLink No. 674

FireWall-1 4.0 / starts at \$2,995 est. street price / Check Point Software Technologies / (650) 628-2000 / InfoLink No. 675

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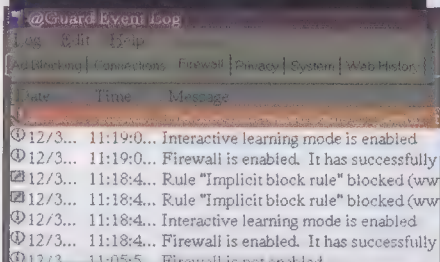
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8

8 **Don't let your browser track you.** Marketers can get the skinny on you—courtesy of your browser. They start with your name and

e-mail address, which they get from your browser's settings, then use the Web to find the rest (see tip No. 1). Slip under these Web sites' radar by browsing anonymously with the Anonymizer. Cookies—lines of text written to a file on your hard drive—can also give you away. While it's impossible



8 **Stop Web sites from tracking your moves with AtGuard, a personal firewall that blocks and alerts you to cookies.**

for Web sites to see your cookie file, they can deposit new entries and keep tabs on you that way. To have Netscape Navigator 4.0 warn you when you visit sites that use cookies, choose Edit, Preferences, Advanced. In Microsoft Internet Explorer 4.0, go to the View menu and choose Internet Options, then Advanced. For even stronger protection plus a personal firewall, use WRQ AtGuard. Turn on Block Refer Fields to make sure sites can't use a hole in the HTTP protocol to tell them where you've been on the Web.

AtGuard / \$30 est. street price / WRQ / (800) 872-2829 / InfoLink No. 676

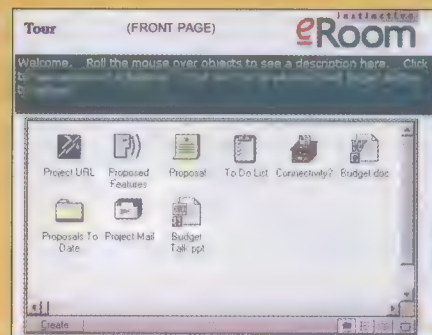
9

9 **Internet collaboration may not be safe.** One of the best things about the Web is that it's so easy to work with far-flung associates. But—surprise, surprise—there are risks.

Outsiders can just as easily view your chat discussions, whiteboard

musings, and files if you're not careful. Before you set up a project or team workspace on the Web, make sure it truly is private. You have scads of collaboration and conferencing apps and services to choose from.

Many of them are free, but not all provide tight online security. Don't take any chances. Use a secure product like Instinctive Technology eRoom or a secure conferencing app like Microsoft NetMeeting or White Pine MeetingPoint.



Privacy Please Don't share sensitive data on the Web without secure conferencing software like eRoom 3.0.

eRoom 3.0 / \$4,995 per server and \$199 per seat, est. street prices / Instinctive Technology / (888) 593-7666 / InfoLink No. 677

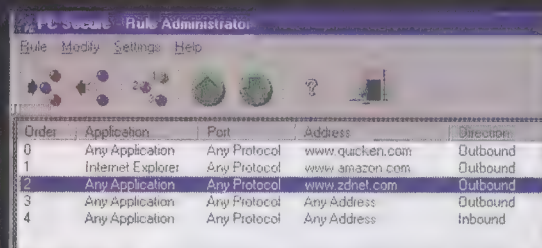
MeetingPoint / \$8,995 est. street price per 10-user server / White Pine Software / (800) 241-7463 / InfoLink No. 678

10

10 **Your Web site could be open to invasion.** Hackers love to crow about their achievements. But aside from posting their own sites commemorating successful hacks of Pentagon, CIA, and Los Angeles Police Department sites, this brand of computer whiz is mostly harmless. Much more dangerous are crackers, who break into systems with malicious intent: theft, sabotage, information scrambling. Hackers and crackers

generally prefer invading high-profile sites. But just because your site isn't the Department of Defense doesn't mean it's safe. Like a sturdy dead bolt, PGP encryption keeps most trespassers at bay. If an ISP hosts your business or personal Web site, make sure it offers firewall protection. To protect your home or small-business PCs, install a personal firewall like AtGuard or PC Secure Personal Firewall.

PC Secure Personal Firewall / \$60 est. street price / Software Builders Int'l / (800) 432-0025 / InfoLink No. 679



Keep hackers and crackers at bay with a personal firewall like PC Secure Personal Firewall.

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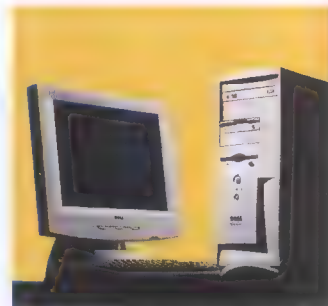
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- Turtle Beach Montego A3D 64V Sound Card
- ACS-295 Speakers with Subwoofer
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Business Lease^o: \$94/Mo., 36 Mos.

 E-VALUE CODE: 02484-590224

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- 512KB Integrated L2 Cache
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- 17" (16.0" viewable, .26dp) Trinitron 1000HS Monitor
- 16MB STB nVidia TNT 3D AGP Graphics Card
- 40X Max™ Variable CD-ROM Drive
- Crystal 3D 64V Wavetable Sound
- harman/kardon HK-195 Speakers
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Business Lease^o: \$76/Mo., 36 Mos.


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Business Lease^o: \$68/Mo., 36 Mos.


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- 40X Max™ Variable CD-ROM Drive
- Yamaha XG 64V Wavetable Sound
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- Trial Offer ConnectDirect Internet Access^V
- Iomega Zip 100MB Internal Drive
- APC SurgeStation Pro8T2

\$1599

Business Lease^o: \$61/Mo., 36 Mos.

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- 64MB SDRAM
- 128KB Integrated L2 Cache
- 8.4GB Ultra ATA Hard Drive
- NEW 17" (16.0" viewable, .26dp) M780 Monitor
- 8MB ATI 3D AGP Graphics
- 32X Max™ Variable CD-ROM Drive
- Intel 10/100 Ethernet Controller
- ★ 3Com USRobotics V.90™ PCI Telephony WinModem, add \$49.
- ★ Iomega Zip 100MB Internal Drive with Two Cartridges, add \$99.
- ★ Upgrade to MS® Windows NT® Workstation 4.0, add \$99.

\$1299

Business Lease^o: \$49/Mo., 36 Mos.

 E-VALUE CODE: 02484-590212

POWER UPGRADES

- Iomega Zip 100MB Internal Drive, add \$99.
- 3Com USRobotics V.90™ PCI Telephony WinModem, add \$49.
- 3Com 3C905B 10/100 NIC, add \$50.
- Intuit QuickBooks v6.0 Pre-installed, add \$118.
- 3-Year Next-Business-Day On-site^A Service, add \$99.

Prices valid with system purchase only.

\$50 TO \$100 MAIL-IN REBATE ON THESE HP® PRODUCTS WHEN PURCHASED WITH DELL DESKTOPS AND MONITORS. OFFER ENDS 5/1/99.

- Add an HP DeskJet® 722C Color Printer for only **\$199**
\$249 - \$50 MAIL-IN REBATE^o
- Add an HP OfficeJet 600 Multifunction Printer for only **\$349**
\$399 - \$50 MAIL-IN REBATE^o

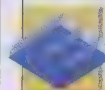
- Add an HP ScanJet 4100Cse for only **\$149**
\$199 - \$50 MAIL-IN REBATE^o

DELL DIMENSION AWARD INFO

- In 1998, Dell Dimension desktops won more than 90 product and service awards. See www.dell.com/awards98 for details.
- Winner of the 1998 *PC Computing* MVP "State-of-the-Art Desktop" (XPS R450) and "High-Performance PC" (XPS R400) awards.
- Three-time "A" rating in *PC Magazine's* Readers' Choice Awards for Service and Reliability (1996-1998).
- Received 32 "Best Buy" awards from *PC World* in its Power, Budget and Home categories.

Advertised configurations vary from award-winning configurations

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- Microsoft Windows® 98
- Dell QuietKey® Keyboard
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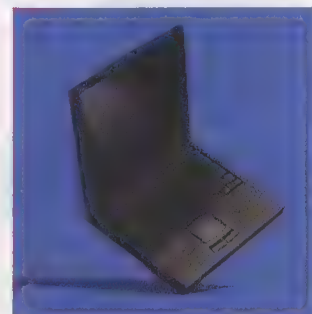
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Light weight. Light price.*



*The Dell Latitude® Notebook Series.
The network-optimized notebook.*



TIME.

NEW DELL[®] INSPIRON[™] 7000 A366LT PENTIUM[®] II PROCESSOR AT 366MHz

All-in-One Multimedia Performance

- 15" XGA Active Matrix Display
- 64MB SDRAM (384MB Max[®])
- 4GB Ultra ATA Hard Drive
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- 3D Surround Sound
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- Trial Offer ConnectDirect[™] Internet Access[†]
- MS[®] Office 97 SBE (Ask about Our FREE MS Office 2000 Upgrade Offer)
- Microsoft[®] Windows[®] 98/Touchpad
- 3-Year Limited Warranty[†]

\$3399

Business Lease[®]: \$129/Mo., 36 Mos.

 **E-VALUE CODE: 02485-890233**

NEW DELL INSPIRON 7000 A333LT PENTIUM II PROCESSOR AT 333MHz

All-in-One Multimedia Performance

- 15" XGA Active Matrix Display
- 64MB SDRAM (384MB Max[®])
- 4GB Ultra ATA Hard Drive
- Removable Combo 24X Max[™] Variable CD-ROM and Floppy Drive
- 2X AGP 4MB ATI RAGE Pro 3D Video
- 3D Surround Sound
- 12-Cell Intelligent Lithium Ion Battery
- MS Office 97 SBE (Ask about Our FREE MS Office 2000 Upgrade Offer)
- Microsoft Windows 98/Touchpad
- 3-Year Limited Warranty[†]
- ★ Upgrade to a 6.4GB Ultra ATA Hard Drive, add \$149.
- ★ 3Com[®] Fast Ethernet Adapter, add \$129.

\$2799

Business Lease[®]: \$106/Mo., 36 Mos.

 **E-VALUE CODE: 02485-890227**

NEW DELL INSPIRON 7000 A333GT PENTIUM II PROCESSOR AT 333MHz

All-in-One Multimedia Performance

- 14.1" XGA Active Matrix Display
- 64MB SDRAM (384MB Max[®])
- 4GB Ultra ATA Hard Drive
- Removable Combo 24X Max[™] Variable CD-ROM and Floppy Drive
- 2X AGP 4MB ATI RAGE Pro 3D Video
- 3D Surround Sound
- 12-Cell Intelligent Lithium Ion Battery
- MS Office 97 SBE (Ask about Our FREE MS Office 2000 Upgrade Offer)
- Microsoft Windows 98/Touchpad
- 3-Year Limited Warranty[†]
- ★ Upgrade to 96MB SDRAM, add \$99.
- ★ Custom Leather Case, add \$99.
- ★ Internal 56K Capable[™] V.90 Modem, add \$59.

\$2599

Business Lease[®]: \$98/Mo., 36 Mos.

 **E-VALUE CODE: 02485-890225**

NEW DELL INSPIRON 3500 A300GT PENTIUM II PROCESSOR AT 300MHz

Light Weight, Light Price

- 14.1" XGA Active Matrix Display
- 32MB SDRAM (256MB Max)
- 3.2GB Ultra ATA Hard Drive
- Modular 24X Max[™] Variable CD-ROM
- NeoMagic MediaMagic 256AV AGP Video
- 3D Surround Sound
- 9-Cell Intelligent Lithium Ion Battery
- APC SurgeArrest PNote 1 Pro
- Internal 56K Capable[™] V.90 Modem
- Trial Offer ConnectDirect Internet Access[†]
- MS Office 97 SBE (Ask about Our FREE MS Office 2000 Upgrade Offer)
- Microsoft Windows 98/Touchpad
- 3-Year Limited Warranty[†]

\$2299

Business Lease[®]: \$87/Mo., 36 Mos.

 **E-VALUE CODE: 02485-890222**

DELL INSPIRON 3500 D266XT[™] PENTIUM II PROCESSOR AT 266MHz

Light Weight, Light Price

- 13.3" XGA Active Matrix Display
- 32MB SDRAM (256MB Max)
- 3.2GB Ultra ATA Hard Drive
- Modular 24X Max[™] Variable CD-ROM
- NeoMagic MediaMagic 256AV AGP Video
- 3D Surround Sound
- 9-Cell Intelligent Lithium Ion Battery
- MS Office 97 SBE (Ask about Our FREE MS Office 2000 Upgrade Offer)
- Microsoft Windows 98/Touchpad
- 3-Year Limited Warranty[†]

\$1999

Business Lease[®]: \$76/Mo., 36 Mos.

 **E-VALUE CODE: 02485-890219**

DELL LATITUDE[®] CPi D300XT[™] PENTIUM II PROCESSOR AT 300MHz

Network-Optimized Notebook

- 13.3" XGA Active Matrix Display
- 64MB EDO RAM (256MB Max)
- 4.3GB Ultra ATA Hard Drive
- Modular 24X Max[™] Variable CD-ROM
- NeoMagic 128-bit Graphics Accelerator
- 3D Surround Sound
- Intelligent Lithium Ion Battery
- MS Windows NT[®] Workstation 4.0
- Touchpad
- 3-Year Limited Warranty[†]
- 1-Year NBD On-site[®] Service

\$2899

Business Lease[®]: \$110/Mo., 36 Mos.

 **E-VALUE CODE: 02485-790228**

DELL LATITUDE CPi D233ST[™] PENTIUM II PROCESSOR AT 233MHz

Network-Optimized Notebook

- 12.1" SVGA Active Matrix Display
- 64MB EDO RAM (256MB Max)
- 4.3GB Ultra ATA Hard Drive
- Modular 24X Max[™] Variable CD-ROM
- NeoMagic 128-bit Graphics Accelerator
- 3D Surround Sound
- Intelligent Lithium Ion Battery
- MS Windows NT Workstation 4.0
- Touchpad
- 3-Year Limited Warranty[†]
- 1-Year NBD On-site[®] Service

\$2399

Business Lease[®]: \$91/Mo., 36 Mos.

 **E-VALUE CODE: 02485-790223**

DELL NOTEBOOK AWARD INFO

- Two-time "A" rating in *PC Magazine* Readers' Choice Awards for Service and Reliability, 7/98; 7/97.
- Latitude Line — *PC Computing's* "Best Overall" Rating Three Years (1996-1998).
- Inspiron 7000 D300GT — *CNET* Editors' Choice, "Leading Edge Notebooks," 9/98.

Advertised configurations vary from award-winning configurations.

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
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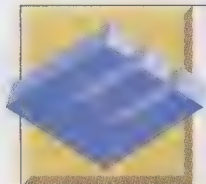


For about the price of a desktop computer, you can provide your people with e-mail, workgroup applications and the latest data. Thanks to the new Dell PowerEdge 1300 server.

This Pentium II processor-based powerhouse pumps data to all of your desktops allowing your people to work and communicate as a team. For added reliability, try our PowerEdge 2300 server. Ideal for the growing business, this speedy Pentium II processor-based server can host up to six hot-swap hard drives.

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- 128MB ECC EDO Memory
- 512KB Integrated L2 Cache/Processor
- Three 9GB Ultra-2/LVD SCSI Hot-Swap Hard Drives
- High Performance Ultra-2/LVD PowerEdge Expandable RAID Controller 2
- 32X Max[^] Variable SCSI CD-ROM
- HP® OpenView™ NNM Special Edition
- Integrated Dual Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- Redundant Hot-Pluggable Power Supplies, Cooling Fans and Processor Fans
- 7 Expansion Slots: 4x64-bit, 3x32-bit PCI
- 6-1.6" Hard Drive Bays
- 3-Year NBD On-site[^] Service
- 1-Year DirectLine™ NOS Support
- 7x24 Dedicated Server Hardware Technical Telephone Support

\$11,749

Business Lease^o: \$416/Mo., 36 Mos.


 **E-VALUE CODE: 02486-290203**

DELL POWEREDGE 4300 SERVER PENTIUM II PROCESSOR AT 450MHz (DUAL PROCESSOR/RAID CAPABLE)

- 128MB 100MHz ECC SDRAM
- 512KB Integrated L2 ECC Cache
- 18GB Ultra-2/LVD SCSI Hard Drive (Hot-Swap Optional)
- 32X Max[^] Variable SCSI CD-ROM
- HP OpenView NNM Special Edition
- Intel® Pro/100+ PCI Ethernet Adapter
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- Redundant Hot-Pluggable Power Supplies, Cooling Fans and Processor Fans
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- 6-1.6" Hard Drive Bays
- 4 External 5.25" Drive Bays
- 3-Year NBD On-site[^] Service
- 1-Year DirectLine NOS Support
- 7x24 Dedicated Server Hardware Telephone Technical Support

\$5899

Business Lease^o: \$217/Mo., 36 Mos.


 **E-VALUE CODE: 02486-290258**

DELL POWEREDGE 2300 SERVER PENTIUM II PROCESSOR AT 450MHz (RAID 5 CONFIGURATION)

- 128MB 100MHz ECC SDRAM
- 512KB Integrated L2 ECC Cache
- Three 9GB Ultra-2/LVD SCSI Hot Swap Hard Drives
- Ultra-2/LVD PowerEdge Expandable RAID Controller 2/SC
- 32X Max[^] Variable SCSI CD-ROM
- HP OpenView NNM Special Edition
- Intel Pro/100+ PCI Ethernet Adapter
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- 6-1" Hard Drive Bays
- 3 External 5.25" Drive Bays plus Floppy
- 3-Year NBD On-site[^] Service
- 7x24 Dedicated Server Hardware Telephone Technical Support

\$5249

Business Lease^o: \$193/Mo., 36 Mos.

 **E-VALUE CODE: 02486-290252**

INTRODUCING DELL NETWORKS™ NEW NETWORK INSTALLATION SERVICES

With one phone call to Dell, you can now customize your small business network with the right systems and peripherals – and have them installed for you! Some of the services we offer include:

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- Peripheral Installation
- Complete Network Cabling Installation
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TO CUSTOMIZE YOUR NETWORK.

Must purchase a PowerEdge server to be eligible for installations services.

DELL SERVER AWARD INFO

- *Network World* "World Class Award" for flexibility, serviceability and manageability – Dell PowerEdge 2300, 6/98.
- *Computer Shopper* "Top 100" – Dell PowerEdge 2300, 11/98.
- *PC Computing's* "The 'A' List" – Dell PowerEdge 6300, 11/98.
- *Fortune* – 1998 Readers' Choice Award for Personal Service and Reliability, 11/98.
- *LANTIMES* "The Best of LANTIMES Over \$25,000" – Dell PowerEdge 6300, 9/98.
- *ComputerWorld's* "Leaders' Choice" Winner Workgroup Servers – Dell PowerEdge Family, 1/98.


Advertised configurations vary from award-winning configurations.

DELL POWEREDGE 2300 SERVER PENTIUM II PROCESSOR AT 400MHz (DUAL PROCESSOR/RAID CAPABLE)

- 128MB 100MHz ECC SDRAM
- 512KB Integrated L2 ECC Cache
- 9GB Ultra-2/LVD SCSI Hard Drive (Hot-Swap Optional)
- 32X Max[^] Variable SCSI CD-ROM
- MS® Windows NT® Server 4.0
- HP OpenView NNM Special Edition
- Intel Pro/100+ PCI Ethernet Adapter
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- 4-1.6" or 6-1" Hard Drive Bays
- 3 External 5.25" Drive Bays plus Floppy
- 3-Year NBD On-site[^] Service
- 7x24 Dedicated Server Hardware Technical Telephone Support
- ★ Upgrade to a Pentium II Processor at 450MHz, add \$300.

\$3849

Business Lease^o: \$146/Mo., 36 Mos.


 **E-VALUE CODE: 02486-290238**

DELL POWEREDGE 2300 SERVER PENTIUM II PROCESSOR AT 350MHz (DUAL PROCESSOR/RAID CAPABLE)

- 64MB 100MHz ECC SDRAM
- 512KB Integrated L2 ECC Cache
- 4GB Ultra-2/LVD SCSI Hard Drive (Hot-Swap Optional)
- 32X Max[^] Variable SCSI CD-ROM
- HP OpenView NNM Special Edition
- Intel Pro/100+ PCI Ethernet Adapter
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- 4-1.6" or 6-1" Hard Drive Bays
- 3 External 5.25" Drive Bays plus Floppy
- 3-Year NBD On-site[^] Service
- 7x24 Dedicated Server Hardware Technical Telephone Support
- ★ Upgrade to a Pentium II Processor at 400MHz, add \$300.

\$2349

Business Lease^o: \$89/Mo., 36 Mos.

 **E-VALUE CODE: 02486-290223**

NEW/DELL POWEREDGE 1300 SERVER PENTIUM II PROCESSOR AT 350MHz (DUAL PROCESSOR/RAID CAPABLE)

- 64MB 100MHz ECC SDRAM
- 512KB Integrated L2 ECC Cache
- 4GB Ultra-2/LVD SCSI Hard Drive
- 32X Max[^] Variable EIDE CD-ROM
- HP OpenView NNM Special Edition
- Intel Pro/100+ PCI Ethernet Adapter
- Integrated PCI Ultra-2/LVD SCSI Controller
- 6 Expansion Slots: 5 PCI, 1 PCI/ISA
- 4 Hard Drive Bays: 2-1.6" and 2-1"
- 3 External 5.25" Drive Bays
- 3-Year NBD On-site[^] Service
- 7x24 Dedicated Server Hardware Technical Telephone Support
- ★ Add a Pentium II Processor at 350MHz, \$399.

\$1849

Business Lease^o: \$70/Mo., 36 Mos.

 **E-VALUE CODE: 02486-290218**

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- 256MB 100MHz ECC SDRAM
- 512KB Full-Speed Integrated L2 Cache
- 9GB Ultra-2/LVD SCSI Hard Drive
- Adaptec RAIDPort Ultra-2/LVD Adapter
- 21" (19.8" vis) Trinitron® 1600HS Monitor
- 3Dlabs Oxygen GMX 2000 Graphics Card
- 40X Max™ Variable CD-ROM Drive
- Sound Blaster Pro Compatible Sound
- Integrated 3Com® 10/100 PCI NIC
- Remote Client Manageability Support via DMI 2.0; Wakeup on LAN Capable

• MS® Windows NT® 4.0 and 1-Year NT Telephone Support

- 3-Year NBD On-site^A Service
- 7x24 Dedicated Hardware Tech Support
- ★ Upgrade to a NEW 17" Flat Panel 1700FP Display, add \$1000.

\$6449

Business Lease^B: \$237/Mo., 36 Mos.

 **E-VALUE CODE: 02487-490264**

DELL PRECISION WORKSTATION 410 PENTIUM II PROCESSOR AT 400MHz (Dual Processor/RAID Capable)

- 128MB 100MHz ECC SDRAM
- 512KB Integrated L2 Cache
- 4GB Ultra-2/LVD SCSI Hard Drive
- 17" (15.9" vis) M780 Monitor
- Diamond 8MB AGP Graphics Card
- 40X Max™ Variable CD-ROM Drive
- Sound Blaster Pro Compatible Sound
- harman/kardon HK-195 Speakers
- Integrated 3Com 10/100 PCI NIC
- Remote Client Manageability Support via DMI 2.0; Wakeup on LAN Capable

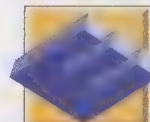
• MS Windows NT 4.0 and 1-Year NT Telephone Support

- 3-Year NBD On-site^A Service
- 7x24 Dedicated Hardware Tech Support

\$2859

Business Lease^B: \$108/Mo., 36 Mos.

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- 3-Year Limited Warranty†
- 1-Year NBD On-site* Service

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2 GO TO THIS



3 ENTER THIS

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ENTER YOUR E-VALUE CODE

24327 590221C

4 BUILD THIS

CUSTOM CONFIGURE YOUR SYSTEM

2 component selections may require changes to other system options. Please check below.

Dell Dimension XPS R MiniTower
Pentium® processor, 450MHz with 512KB L2 Cache

Memory
128MB SDRAM

Hard Drive HELP ME CHOOSE
14.4GB Ultra ATA Hard Drive (7200 RPM)

Monitor HELP ME CHOOSE
21" (19.8" viewable, 26dp Trinitron® 1600HS Monitor [add \$531])

Video Card HELP ME CHOOSE
16MB STB nVidia TNT 3D AGP Graphics Card

Please review the following regarding your Video selection:
• Not available on the 4.8X DVD with Software Decoding

DVD-ROM or CD-ROM Drive HELP ME CHOOSE
4.8X DVD ROM Drive and Decoder Card

5 AND GET THIS

Latest price

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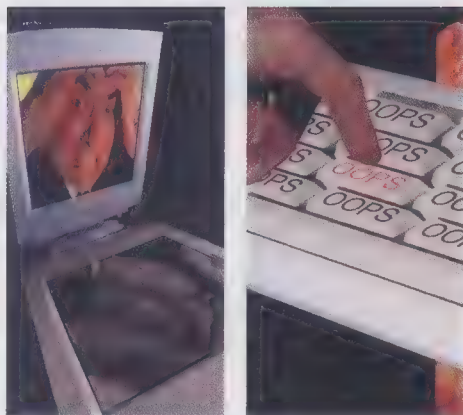


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modem makes the difference.

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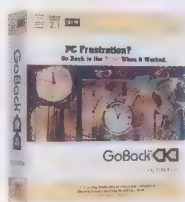
because at 7:20 you installed some new software and now at 7:35 nothing works, and the uninstall at 7:40 didn't work either (things got worse), so wouldn't you like to go back to 7:20?

because at 9:15 you started making major changes to a document, and at 9:50 accidentally overwrote the original (which you need), so wouldn't you like to pop back to 9:15 for a moment?

because today you downloaded something from the Internet, and now you've got a virus, so wouldn't you like to go back to yesterday?

because at this moment you're on an airplane, three hours into flight, and you did an "oops" (a big one), and now the portable crashed and won't boot, so wouldn't you like to go back five minutes?

because, and this is a real big because, you don't always have a backup when you need it, so wouldn't you like to go back anyway?



To fix your PC, send it back in time to the way it was—as easily as setting a clock. Or, go back in time and grab an old version of a file. It's quick and easy using GoBack!

Name	Modified Time
GoBack Ad20 Guy In The ...	10/15/98 2:42:32 PM
GoBack Ad20 Guy In The ...	10/15/98 2:42:17 PM
California.svs	10/15/98 2:37:46 PM

Why is this important?

because either from the everyday "oops" that occurs from user error or software problems, or virus attacks, or system crashes, or the infamous Y2K, or for reasons only a computer nerd would understand, it is inevitable that your computer will get really messed up.

But now there is no reason to suffer the frustration that normally follows. With GoBack, you can go back to the time when your PC worked! GoBack is such a simple solution to a whole host of problems that we feel it is the missing piece of your operating system.

Why risk a data loss disaster? Start protecting all your hours of hard work since your last backup!

Now there is a way back. With GoBack installed, special information is quietly stored away on your existing hard disk. This allows you to go back in time. You can retrieve specific files or entirely restore your hard disk. Your reach typically is as far back as a week, but varies, as resources are available.

GoBack is neither a backup/restore product nor a utility product. It is a remarkable tool that integrates itself into the operating system to protect you against data loss. Once installed, and unlike a backup, no further action is required on your part. That is, until you need it.

Why we were a PCWeek Best of Comdex Finalist

We did this demo a hundred times at COMDEX. It amazed people. It earned us PCWeek Best of COMDEX Finalist of Comdex at the top PC show in the country.

The onlookers smile. We kill the computer! How? We delete the entire Windows directory and of course, empty the Recycle Bin. We move key directories around and overwrite critical files. System trashed. Looking out at the Comdex crowd we challenge anyone to fix it. An IT person turns away in disbelief. Well, wait until you see this, guys.

We turn the PC on and off (what we all really do in a panic). GoBack fixes it all, by sending the PC back a few minutes in time.

Someone wants to see GoBack in action again. So this time we accidentally overwrite a major document, three times! Oops. No problem, with GoBack we can jump back in time and retrieve the original. Pretty cool.

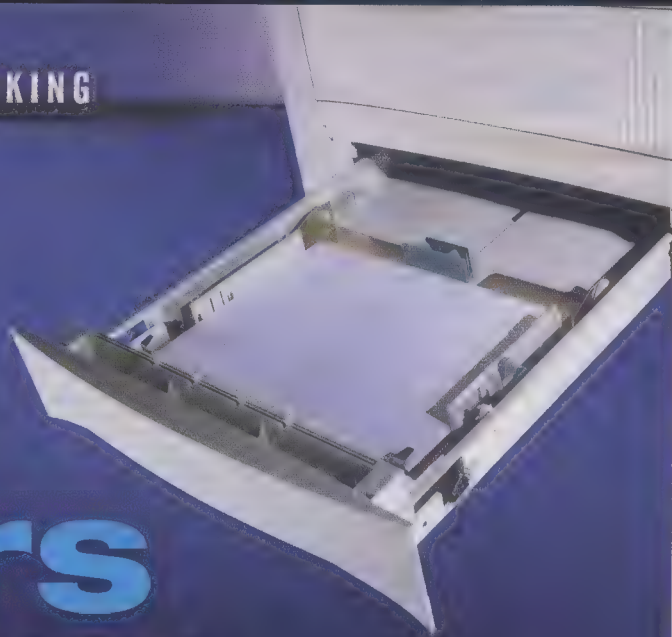
In a few years it will be hard to imagine that you ever used a PC that could not go back in time. For your everyday oops, for viruses, for bad installs, and even for what might happen when the year 2000 arrives, this is what you need to have.

GoBack™

by WildFile

Ultrafast COLOR Printers

(and They're Cheap, Too!)



Imagine a world without color. A pretty bland, drab picture, right? So why should your office documents, presentations, and memos be stuck in a black-and-white world? A dab of color here and there will get your work noticed and make it rise to the top of the pile.

While color printers have come down in price, they're still not affordable enough to put on every desk in your office—that is, unless you go for an ink-jet printer. But with ink jets you pay pennies up front but face steep long-term costs (see “Color Printers: Return on Investment,” page 177). The solution? Buy one color printer for your department to share.

Unless you have a bottomless budget, that printer will most likely be the sole departmental workhorse. That means it's got to print text and colors fast. After all, most of the documents you print will be 1- or 2-page memos and the occasional long report. Likewise, when you need to print a presentation for an upcoming meeting, you can't slow down the entire department waiting for color pages to inch their way out.

Wondering if such well-rounded machines exist? They do. And we've put nine through their paces in the PC Computing Labs. All the printers but one are color lasers. They churn out text pages at 12 to 24 ppm and print gorgeous color output at slower speeds. These printers are the perfect choice when you need both good text and color output. We also tested a thermal-transfer printer, the Kodak 8670 PS Thermal II, does fine work with graphics—including stunning presentations and dazzling photographs—but isn't as well suited for text. A thermal-transfer printer works best as a secondary network printer, when you have a fast laser printer for producing your text documents.

If you opt for laser output, you've got plenty of choices. In the past year we've seen several new players join

Buyer's Checklist

Paper Pusher Look for paper trays that hold a minimum of 500 sheets

Get Connected Choose a printer with a built-in Ethernet card for easy network setup

Quick Swap Be sure you have easy access to replace toner cartridges



BY KYLA K. CARLSON

the market, watched prices plummet, and been awed by the increase in print speeds—up to 12 ppm for color. We tested eight such lasers in the PC Computing Labs: the Genicom Digital Laser LNC02, Hewlett-Packard Color LaserJet 8500N, Lexmark Optra Color 1200n, NEC SuperScript 4400N, Panasonic KX-P8420, QMS magicolor 2DX, Tally Spectra*Star T8104+, and Tektronix Phaser 740/DX. The Xerox DocuPrint NC60 wasn't available for testing at the time of our review, but will be available later this year.

Winner Take All Hands down, the best overall network color printer is the Lexmark Optra Color 1200n. It breaks all speed barriers when it comes to color performance, and it produces crisp, eye-catching output. It's also the only printer that produces color pages at the same speed as black and white, so it won't bog down the network when someone needs to print a 20-page presentation. While we wish it printed text faster than 12 ppm, its speedy color output helped us overlook this small detail. Although it's expensive at \$8,499, you won't find a faster color printer for the price.

The other color lasers we tested crank out text much quicker than graphics. The Hewlett-Packard Color LaserJet 8500N is the fastest at 24 ppm. (Ideally, 16 ppm is the minimum text speed you want on any color laser.) Another plus: The Color LaserJet includes a black toner cartridge that's much larger than its other three colors (cyan, magenta, yellow). Since you'll use the black toner more often than the other colors, you'll replace cartridges



Best Overall It's not often that you get to use **fast** and **color** in the same sentence when talking about printers. But the Lexmark Optra Color 1200n produces color pages faster than any other printer out there. It's pricey at \$8,499, but it also gives you the lowest cost per page—6 cents for color, 1 cent for black.

less frequently. The other printers we tested give you equal amounts of cyan, magenta, yellow, and black toner.

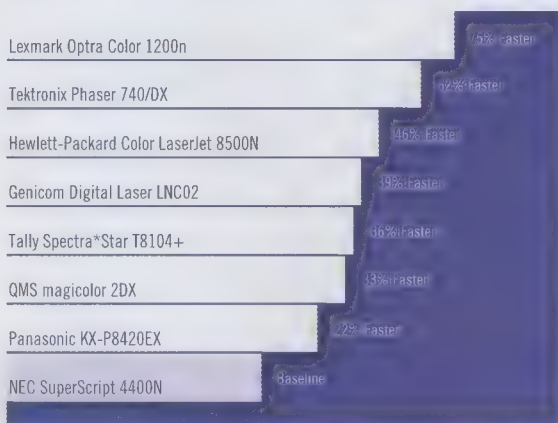
Separated at Birth The Genicom Digital Laser LNC02, NEC SuperScript 4400N, QMS magicolor 2DX, and Tally Spectra*Star T8104+ all sport the same engine and are nearly identical in appearance. But the NEC has the lowest price tag of the bunch (\$2,999). Each vendor tweaks its printer's drivers to make its model perform a little differently. For example, the Genicom Digital Laser was lightning fast when printing out long (50-page) text documents in our tests, beating the closest performer—the Tektronix Phaser 740—by more than 2 minutes. For shorter (10-page) documents, the Genicom, QMS, and Tally printers were neck and neck, but the NEC SuperScript lagged dramatically. We found similar results for presentations. However, when printing a huge Adobe Photoshop document, the NEC SuperScript was quick, whereas its three siblings were sluggish.

The Panasonic KX-P8420 and Tektronix Phaser 740/DX use the same engine, but in our tests the Phaser outshone the Panasonic printer in both speed and output quality.

We also found big differences in output quality for solid presentation backgrounds and flesh tones. The Hewlett-Packard, Kodak, and Tally printers did a good job with presentations. Their colors were vibrant, the graphics sharp, and the backgrounds smooth. (Solid-color backgrounds were often splotchy with the other printers.) The Tally and HP printers produced flesh tones tinged with gray, and those from the QMS were washed out. The NEC's prints were too yellow, giving skin a waxy appearance. The Tektronix printer had the best color matching for flesh tones by far—just a bit rosy.

PERFORMANCE

Color Printing



NOTE: SCORES REFLECT OVERALL COMBINED TIMES FOR 10-PAGE AND 50-PAGE MICROSOFT WORD DOCUMENTS, A 3-PAGE MICROSOFT POWERPOINT PRESENTATION, AND A 1-PAGE ADOBE PHOTOSHOP FILE.

Page Turners The fastest way to get color is the Lexmark Optra Color, which relies on four separate printing drums to speed output.

PC COMPUTING LABS



Best Value A networked color laser for just over \$3,000? Sold! QMS's magicolor 2DX is one of the least expensive printers in the bunch, and it doesn't force you to make sacrifices. It's a quick performer when it comes to text and color presentations, and its color output won't disappoint.



Best Usability You'll have to clear a space for the hulking HP Color LaserJet 8500N—but when you do, watch out. Its 24-ppm engine for black output and its huge paper capacity keep your network humming. And its low cost per page (7 cents for color, 1 cent for black and white) means the HP pays for itself in no time.

Panasonic also did well with flesh tones.

Most of the printers do a fine job when it comes to photographs. The NEC suffers the most from dot patterns. Color matching proved to be tricky for most printers; Tektronix does the best job at this. Overall, we were impressed with the photo quality of all the printers, but the Kodak thermal transfer produced the most stunning results.

Get a Handle on It Paper handling is key in a network color printer, especially if this is the only printer

serving a department. The Hewlett-Packard Color LaserJet 8500N is the best for high-volume printing. It's huge, standing over 3 feet tall, but it's on wheels so if you have the floor space it's easy to maneuver. The larger size means it has room for several stacked (optional) paper trays, which hold a whopping 1,100 sheets. The Panasonic printer supports up to 850 sheets (if you buy extra trays), and the Lexmark Optra holds up to 600 sheets. Only the HP Color LaserJet and the Lexmark Optra Color support oversize, 11-by-17-inch paper.

Color Printers

Return on Investment

PC COMPUTING LABS

A network printer's price tag shouldn't be your only guide. Consumables can be a big expense, so figure in cost per page to ensure you're getting the best long-term deal.

It's tempting to spring for a \$300 ink-jet printer over a \$9,000 color laser. But even if you use plain paper, an ink jet will cost a fortune to feed in the long run. Expect to spend about \$1,000 per year (assuming you print about 10 color pages per day, or 2,400 color pages per year) feeding ink cartridges to your ink-jet printer. With the Lexmark Optra Color 1200n, you

can print the same 2,400 pages for just \$144 per year.

Also, if you're wooed by the gorgeous output of the Kodak thermal printer, be warned: If you use this printer for all your printing, you'll be in the hole in no time. At \$2.50 per sheet of thermal paper, the Kodak will cost you \$6,000 a year to print the same number of pages as the Lexmark Optra.

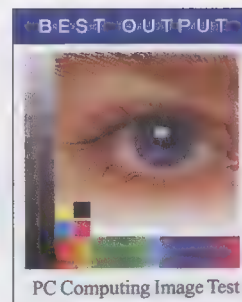
Hidden Costs



Paper Trail The kind of paper your printer requires figures into your long-term costs. The Kodak 8670 uses pricey thermal paper—\$2.50 a page.

Perfect Pages

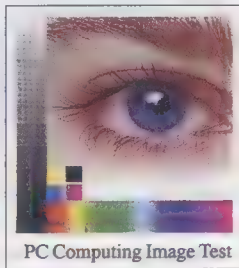
You need a printer that produces both quality text and graphics. The text part is easy for any laser printer. Graphics are a different story. Figure out what you'll print most often. We found that presentation output varies greatly, especially when you use full-color backgrounds. Also, the printers that shine at presentations don't always produce the best photos, and vice versa.



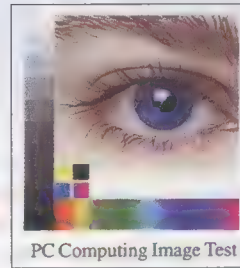
Tektronix Phaser 740/DX
Resolution 1,200 dpi
Bottom Line Rich photo colors with slight dithering; washed-out, blotchy presentations; crisp text.



Eastman Kodak 8670 PS Thermal Printer
Resolution 300-dpi continuous tone
Bottom Line Smooth photos, though colors are a little off; light, ill-formed text.



Genicom LNC02
Resolution 2,400 by 600 dpi
Bottom Line Smooth, vibrant presentations with some slight banding; photos washed out and splotchy; sharp text quality.



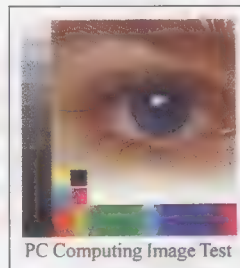
Hewlett-Packard Color LaserJet 8500N
Resolution 600 dpi
Bottom Line Outstanding presentations; overly gray flesh tones; text on the light side.



Lexmark Optra Color 1200n
Resolution 600 dpi
Bottom Line Smooth photo output, but slightly yellow; lightish text.



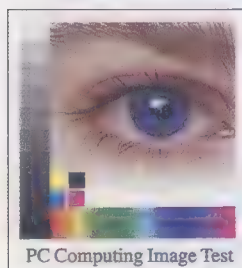
NEC SuperScript 4400N
Resolution 1,200 dpi
Bottom Line Dark and pixelated photos; splotchy presentation backgrounds; sharp text.



Panasonic KX-P8420EX
Resolution 1,200 dpi
Bottom Line Lackluster presentation quality; photos are dark and rough; bold, clear text.

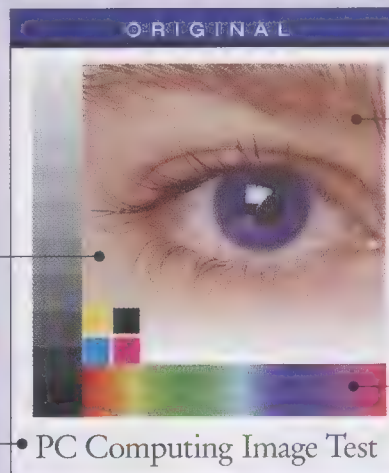


QMS magicolor 2DX
Resolution 2,400 by 600 dpi
Bottom Line Banded and blotchy presentation background; washed-out flesh tones; razor-sharp text.



Tally Spectra*Star T8104+
Resolution 2,400 by 600 dpi
Bottom Line Vibrant presentations; flesh tones a bit grayish; dark, crisp text.

What to Look For




Flesh Tones
Skin tones are the trickiest colors for a printer to produce. Insist on true flesh tones, not ones that are too gray, red, or yellow.

Text Quality
Don't settle for less than razor sharp. Some printers produce bolder text than others—a matter of personal preference.

Smooth Images
Dithering and dot patterns mar even the best colors. You want smooth output.

Color Matching
If the image doesn't look like the original, your printer isn't doing its job. A fire truck should be red, not orange.

Top Color Printers

PRODUCT	Price**	Rated Speed (ppm)	Tested RAM/Max. RAM	Resolution (dpi)	Cost per Page	Pros	Cons	Verdict
 Lexmark Optra Color 1200n (800) 539-6275 InfoLink No. 662	\$8,499	12 color, 12 black	64MB/ 128MB	600	6 cents color, 1 cent black	Excellent color printing for the price; low consumable cost.	Pricy, rough presentation; backgrounds; photos tend toward yellow.	★★★★★ Look no further for speed and low cost per page.
Hewlett-Packard Color LaserJet 8500N (800) 752-0900	\$6,799	6 color, 24 black	32MB/ 256MB	1200	7 cents color, 1 cent black	Swift presentation and lightning-fast text printing; low cost per page; gorgeous presentation output.	Mammoth size; text is a bit light.	★★★★ It's a big box, but you'll love its quick speeds, great output, and low long-term costs.
QMS magicolor 2DX (800) 523-2696 InfoLink No. 663	\$3,299	4 color, 16 black	80MB/ 384MB	2400 by 600	11 cents color, 2 cents black	Inexpensive; decent text and presentation speeds; sharp text output.	Slow Photoshop printing; photos a bit light.	★★★★ A fine choice for a tight budget.
Tektronix Phaser 740/DX (800) 835-6100 InfoLink No. 664	\$4,195	6 color, 16 black	128MB/ 256MB	1200	11 cents color, 2 cents black	Peppy performance; best laser photographic output.	High color costs; presentation output could be better.	★★★★ All-around good performance and great photo output.
Eastman Kodak Professional 8670 PS Thermal Printer (800) 235-6325 InfoLink No. 665	\$7,995	1 color	48MB/ 348MB	300	\$2.50 color	Smooth and gorgeous photographic output.	Expensive up front and high cost per page; can't handle text documents.	★★★ Beautiful photos, but they'll cost you.
Genicom Digital Laser Printer LNC02 (800) 365-0696 InfoLink No. 666	\$3,995	4 color, 16 black	96MB/ 384MB	2400 by 600	16 cents color, 3 cents black	Blazing text speeds; sharp presentation output.	Slow Photoshop speeds; 11-inch photo output.	★★★ A solid workhorse.
NEC SuperScript 4400N (800) 632-4636 InfoLink No. 668	\$2,999	4 color, 16 black	96MB/ 128MB	1200	7 cents color, 2 cents black	Low price; bold, sharp text.	Slow color output not up to snuff.	★★★ Spend the extra money and get a more well-rounded printer.
Panasonic KX-P8420EX (201) 348-7000 InfoLink No. 669	\$4,995	3 color, 14 black	144MB/ 192MB	1200	10 cents color, 3 cents black	Excellent text quality—clear and crisp.	High color costs; dark photos; dawdling print speeds.	★★★ Pricy for the print quality and speed it delivers.
Tally Spectra*Star T8104+ (425) 251-5500 InfoLink No. 667	\$4,049	4 color, 16 black	80MB/ 384MB	2400 by 600	11 cents color, 2 cents black	Snappy text and presentation speeds; lively output.	Sluggish with Photoshop documents.	★★★ Makes your presentations look spectacular.

*FOR MORE INFORMATION, VISIT WWW.PCCOMPUTING.COM/INFLINK **ESTIMATED STREET PRICE

★★★★★ EXCELLENT ★★★ GOOD ★★ ACCEPTABLE ★ POOR ☆ UNACCEPTABLE

Color for Pennies

Before you buy a color printer for your network, consider your options. The most economical solution is to go with a color laser, which can double as your everyday text printer. Color lasers print text quickly and have the lowest cost per page of any printing technology. For sheer speed and low operating costs, choose Lexmark's Optra Color 1200n. While it isn't the fastest for printing text (that honor goes to Hewlett-Packard's Color LaserJet 8500N), no other printer in this price range matches the Lexmark in raw color speed. And the output is impressive.

If you plan to do mostly text printing with just a dab of color here and there, you'll be happiest with the HP Color LaserJet 8500N, which serves up quick print speeds and excellent expandability and paper handling. The Color LaserJet also does a good job printing high-quality presentations and photographs. Genicom's Digital Laser Printer LNC02 also churns out text pages at a rapid clip. If only the very best presentation and photographic output will do, and if you already have a network monochrome

printer, then consider the Kodak 8670 PS Thermal Printer. However, beware of high printing costs—at \$2.50 per page this is a printer best reserved for high-profile projects.

There's no better value than the QMS magicolor 2DX, which at \$3,299 has one of the lowest prices to get you started. Its text and presentation performance are competitive too. The Tektronix Phaser 740/DX delivers the best photographic output of all of the color lasers and has all-around good performance. It costs a bit more than the QMS and its operating costs are a bit higher, but if you can afford it you won't be disappointed. If most of your color printing is presentations, check out the Tally Spectra*Star T8104+. Its presentation output quality is impressive and its speeds are snappy.

KYLA K. CARLSON is a freelance writer and former PC Computing Senior Editor. PC Computing Labs testing was conducted by JULI DAVIS, IBRAHIM GUL, and Lab Manager LULIT BEZUAYEHU.

DECISION MAKER

WHICH COLOR PRINTER IS RIGHT FOR YOU?

- 1 Choose the factor that's most important.
- 2 Choose the next most important factor.
- 3 What else is important?
- 4 For your needs, the best printer to buy is...



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- Integrated Intel 10/100 Ethernet with Wake-up On LAN
- Integrated SoundBlaster® Compatible Audio
- MS® Windows NT® 4.0
- Intel LANDesk® Client Manager v.3.31
- 3-Year Warranty*

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E-3200 350

- Intel Pentium® II Processor 350MHz with 512K ECC Cache
- 96MB 100MHz SDRAM (expandable to 384MB)
- 6.4GB SMART II Ultra ATA Hard Drive
- 13X min/32X max CD-ROM Drive
- EV700 17" Color Monitor (15.9" viewable)
- Integrated ATI RAGE PRO TURBO™ 4MB AGP Graphics Accelerator
- Integrated 3Com® 10/100 Ethernet with Wake-up On LAN
- Integrated SoundBlaster Compatible Audio
- MS Windows NT 4.0
- Intel LANDesk Client Manager v.3.31
- 3-Year Warranty*

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E-4200 450

- Intel Pentium II Processor 450MHz with 512K ECC Cache
- 128MB 100MHz SDRAM (expandable to 384MB)
- 10GB SMART II Ultra ATA Hard Drive
- 13X min/32X max CD-ROM Drive\
- VX900 19" Color Monitor (17.9" viewable)
- ATI RAGE PRO TURBO 8MB 2X AGP Graphics Accelerator
- 3Com 10/100 Ethernet with Wake-up On LAN
- MS Windows NT 4.0
- Intel LANDesk Client Manager v.3.31
- 3-Year Warranty*

\$2398 or \$66/month for 48 mos. lease***

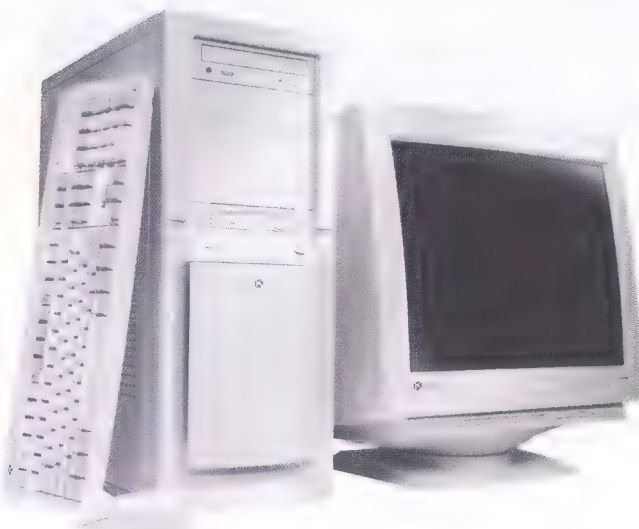


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- VX900 19" Color Monitor (17.9" viewable)
- AccelGraphics™ Permedia® II with 8MB SGRAM
- 3Com® 10/100 Ethernet with Wake-up On LAN
- Microsoft® Windows® NT 4.0
- 3-Year Warranty*

\$1999 or \$55/month for 48 mos. lease**

E-5200 450

- Intel Pentium II Processor 450MHz with 512K ECC Cache (Dual Pentium II Processor capable)
- 128MB ECC SDRAM
- 9GB 7200 RPM SCSI Hard Drive
- 13X min/32X max SCSI CD-ROM Drive
- VX900 19" Color Monitor (17.9" viewable)
- AccelGraphics Permedia II with 8MB SGRAM
- 3Com 10/100 Ethernet with Wake-up On LAN
- MS® Windows NT 4.0
- 3-Year Warranty*

\$3299 or \$91/month for 48 mos. lease**

E-5250 450

- Intel Pentium II Xeon Processor 450MHz with 512K Full-Speed Cache (Dual Pentium II Xeon™ Processor Capable)
- 256MB ECC SDRAM
- 9GB 10K RPM Ultra2 LVD SCSI Hard Drive
- 13X min/32X max SCSI CD-ROM Drive
- VX1100 21" Color Monitor (19.9" viewable)
- AccelGraphics Permedia II with 8MB SGRAM
- 3Com 10/100 Ethernet with Wake-up On LAN
- MS Windows NT 4.0
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GP6-400

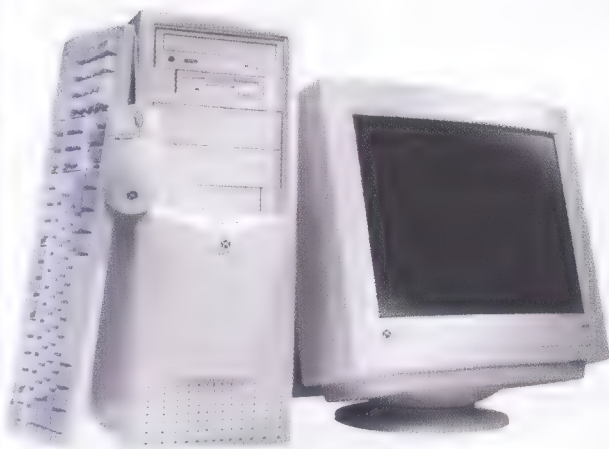
- Intel Pentium® II Processor 400MHz with 512K Cache
- 64MB SDRAM
- EV700 17" Color Monitor (15.9" viewable)
- 16MB AGP Graphics
- 10GB Ultra ATA Hard Drive
- 13X min/32X max CD-ROM Drive
- Iomega Internal ZIP Drive
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- SoundBlaster 64D
- Altec Lansing GCS-100 Speakers
- Mid-Tower Case
- 10/100 Ethernet Network Card
- 104+ Keyboard & Mouse
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- 16MB AGP Graphics
- 16GB Ultra ATA Hard Drive
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- Iomega Internal ZIP Drive
- 3.5" Diskette Drive
- SoundBlaster 64D
- Altec Lansing GCS-100 Speakers
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- 10/100 Ethernet Network Card
- 104+ Keyboard & Mouse
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- MS Office 97, Small Business Edition
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Pentium II vs. Xeon

— Half Speed The Pentium II moves data between the L2 cache and the processing unit at only half the data processing speed (225MHz in a 450MHz system).

— Limited Scalability Pentium II systems running a multiprocessor operating system such as Windows NT limit you to a maximum of two processors.

+ Fast Access Like Xeon chips, Pentium IIs process information quickly because they save critical data and instructions in two separate caches that are built onto the processing unit itself.

CPU Card

— Minimal Cache The Pentium II's L2 cache, which holds commonly used data and instructions for acting on that data, is limited to 512K.

Pentium II

For microprocessors, the name of the game is throughput—how quickly the CPU moves data and instructions. Intel now offers the Celeron, the Pentium II, and the Xeon. The Celeron is an excellent low-cost option, but for a high-performance system should

you go with the Pentium II or the Xeon?

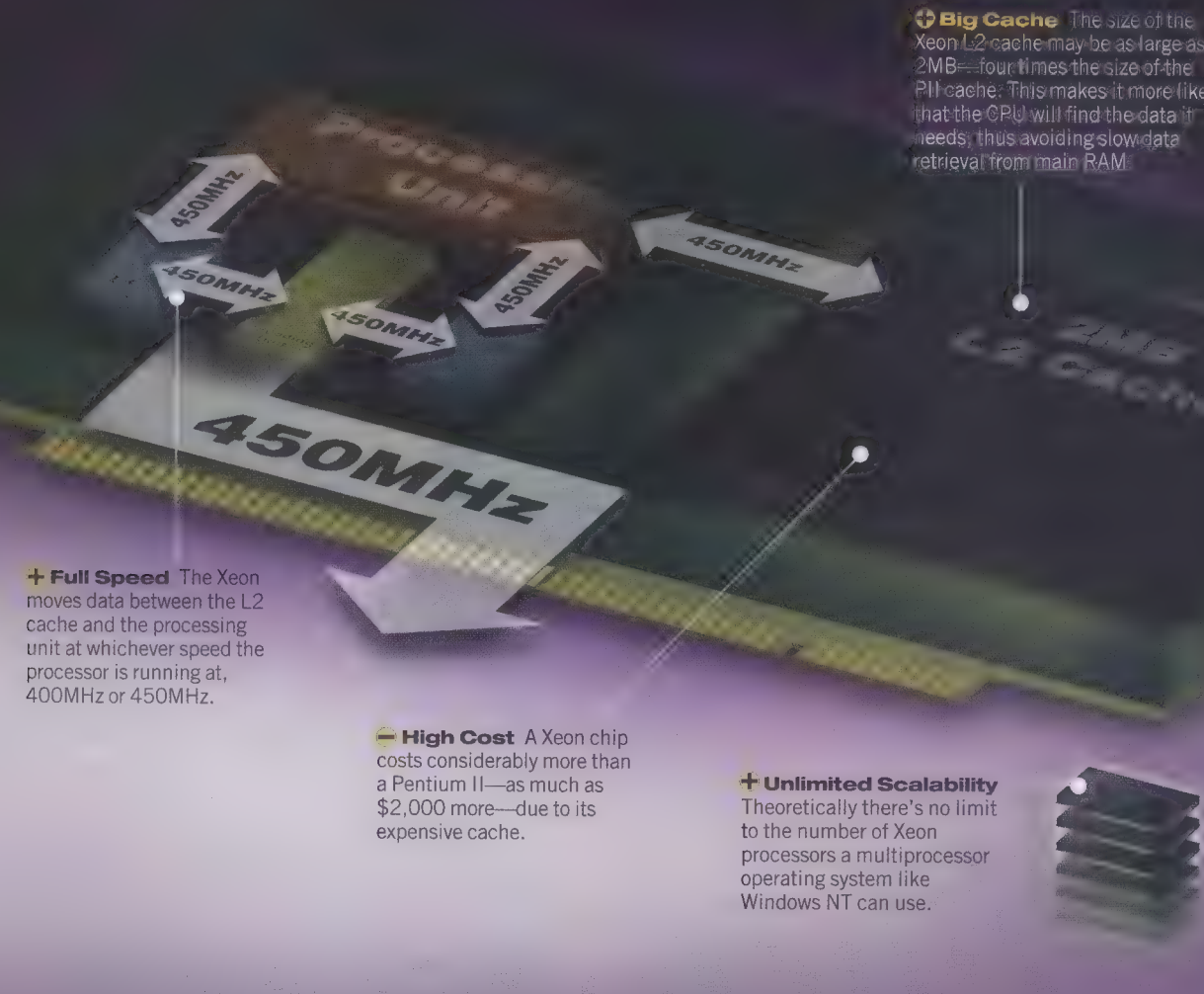
Both chips live on a CPU card that also holds a system of caches to speed data transfer. Between system RAM and the processor, data moves through a series of increasingly faster caches. The first is on the motherboard—512K to 1MB of fast system cache. Inside both the Pentium II and the

Xeon are three more caches. One is a large L2 cache that's part of the chip's housing but separate from the circuitry that does the processing. When the processor retrieves the data, it goes simultaneously to the processing unit and the L2 cache. In the Pentium II, the L2 cache is limited to 512K, whereas in Xeon processors, the L2 cache may be

512K, 1MB, or 2MB. The larger the cache, the better, because more data is available for quick processing. A Xeon processor with 1MB of L2 cache performs 20 percent faster than the same Xeon with a 512K cache. Depending on a system's configuration, a Xeon boosts performance anywhere from 50 to 100 percent over a Pentium II.

Payout and Payback Of course, as the size of the L2 cache increases, so does the cost of the chip. A 450MHz Pentium II currently has a fixed price of around \$500, while the same speed Xeon starts at \$825. The price skyrockets for a 450MHz Xeon

By Ron White



+ Full Speed The Xeon moves data between the L2 cache and the processing unit at whichever speed the processor is running at, 400MHz or 450MHz.

- High Cost A Xeon chip costs considerably more than a Pentium II—as much as \$2,000 more—due to its expensive cache.

+ Unlimited Scalability Theoretically there's no limit to the number of Xeon processors a multiprocessor operating system like Windows NT can use.

+ Big Cache The size of the Xeon L2 cache may be as large as 2MB—four times the size of the PII cache. This makes it more likely that the CPU will find the data it needs, thus avoiding slow data retrieval from main RAM.

Xeon

with a vast 2MB cache: nearly \$3,000.

Inside the processing unit is another type of cache, the L1 cache. Each CPU has a pair of L1 caches—one for data and one for instructions. For both the Pentium II and the Xeon, these caches are 16K each. When the processor wants data or code, it looks to the L1 caches first. If the data or code the processor wants isn't there, the processor then checks the large L2 cache. If the data is not there, next it checks the motherboard's external system cache. As a last resort, the CPU looks for the data or instructions it needs in relatively slow main RAM.

Other factors besides the larger L2

cache make Xeon processing zippier. Xeon chips move data between the processing unit and the L2 cache at whichever speed the processor runs at, 400MHz or 450MHz. The Pentium II transfers data between the processor and the L2 cache at half the processor's speed (for example, 225MHz in a 450MHz system). Additionally, you can have no more than two Pentium II processors in a computer running a multiprocessor operating system such as Windows NT. Theoretically there's no limit to the number of Xeon processors you can use. In fact, eight-processor servers are not uncommon.

Winner: PENTIUM II

Everyday business apps don't benefit from the Xeon. A 450MHz 512K Xeon costs about \$825, compared with \$500 for a PII; a 2MB cache raises the difference to more than \$2,000. The Xeon's extra cost is worth it only for file servers and CAD workstations. Windows 98 systems running games or Adobe Photoshop will see a slight performance increase, but the Xeon is still overkill for desktop apps.

Project Scheduling Made Easy!

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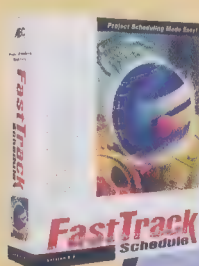
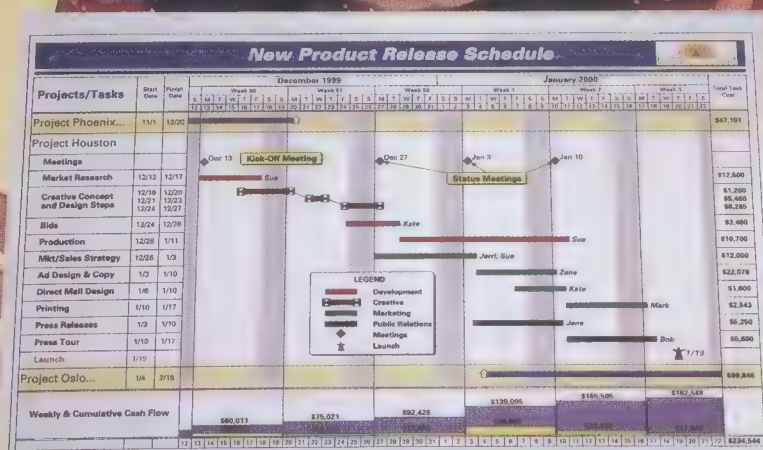
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450 MHz

By Marty Jerome

SUPERSYSTEMS

PROBLEM

SUB-\$1,000 PCs ARE FINE FOR EVERYONE ELSE—BUT NOT ON YOUR DESK.

SOLUTION

20 ULTRAFast PENTIUM IIs THAT COST LESS THAN YOU THINK.

The days of \$3,500 PCs are over. Intel's upcoming Katmai processor—aka the Pentium III—already stalks both market and mind share for high-end desktop PCs. The new CPU is also clawing to ribbons the prices on standard 450MHz Pentium II machines. In case you didn't know, that's good news. But here's a little secret: The Pentium III's graphics prowess will offer very little to today's business apps, so why wait? Jump on a hot bargain-priced 450MHz Pentium II-system now.

Take our word for it. PC Computing Labs rounded up 20 of these barn burners, then put them through their paces. Six of the systems we tested cost under \$2,000. As price-performance ratios go, these machines own the sweet spot in business computing.

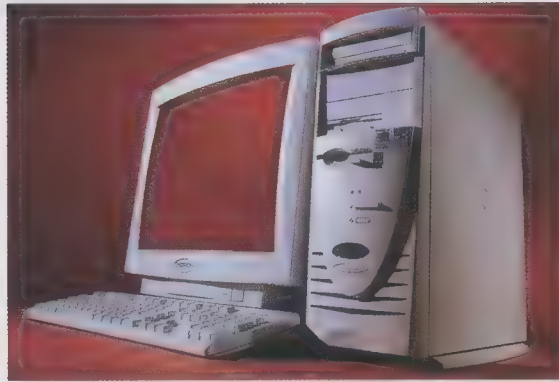
Performance isn't all you get for the dollar. Each of the systems we tested comes with 64MB of memory, a 10GB



Best Overall Its performance rips, its price does not. NEC's \$2,249 Direction SPB 450 was among the fastest of the 20 systems we tested. It includes 64MB of memory, a 14.4GB hard drive, and plenty of extras.



Best Value Is this really a Compaq? It's fiery fast. It's loaded. Yet at \$2,299 it's priced as low as many Compaq wannabes. The Deskpro EP 6450X's dollar value is what other PCs should strive for.



Best Usability Micron's \$2,585 Millennia 450 Max costs a bit more, but if you spend long hours at your system, you'll love its speed, plush configuration, and first-rate design.

or larger hard drive, and an AGP video accelerator with a whopping 16MB of memory. Of course, they also all have CD-ROM or DVD drives and at least 17-inch monitors. Most feature Zip or Superdisk drives and 56Kbps fax modems. DVD drives, high-end audio, TV tuners, Ethernet adapters, and other extras also show up on many of these systems.

NEC's Direction SPB 450 took top honors when all was said and done. It was tied for tops in performance, thanks largely to Diamond's Viper V550 AGP video card and a superspeedy 14.4GB IBM hard drive. However, there wasn't much of a gap between the systems, as they all performed well. Other factors such as features and usability made

certain PCs stand out. The NEC also got our nod because of its cost: \$2,249. That price includes 3Com's modem-and-Ethernet-combo adapter and a 32X CD-ROM drive.

On the other hand, the NEC's configuration is a little on the light side. It comes with no removable hard drive, for example. For straight dollar value you won't find a better PC than Compaq's Deskpro EP Series Model 6450X. We're surprised too. Compaq's desktop systems have a reputation for sizzling performance, excellent usability, and superlative design. But price—well, quality costs you, right?

Promises, Promises With the \$2,299 Deskpro EP 6450X, Compaq appears to be changing its ways where pricing is concerned. The top-drawer Deskpro comes with a 14.4GB hard drive, a DVD drive, a Zip drive, a 56Kbps fax modem, and the company's first-rate audio. It was third fastest in churning business applications, thanks to a speedy hard drive.

For usability, Micron's Millennia 450 Max is the box to beat, but be prepared to pay for it. Its \$2,585 price tag was among the highest in the pack. In overall performance, the machine tied with Polywell's superfast Poly 8450B9 and NEC's speedy Direction SPB 450. Like the Direction, the Millennia is outfitted with Diamond Viper's V550 AGP video card and 16MB of memory, which spurred the system's throughput.

The Millennia is a complete package. In addition to its 14.4GB hard drive and 6X DVD drive, it comes with a Zip drive, superb audio—including Monsoon MM-1000 speakers—and a 19-inch monitor. This is one reason its usability stands out. Crack open the case and you'll find another reason. Everything is clutter free and simple to upgrade. Ribbon cables are tied securely to the sides. Memory sockets and expansion cards are easy to reach. This machine is easy to use—and easy to work on.

The Dell Dimension XPS R450 costs \$2,279, and it's loaded. The \$2,268 Gateway GP6 offers almost as much for about the same price. They're both good buys. Before you settle, though, consider All Computer's \$1,668 Brilliantia A6-450 or TigerDirect's \$1,599 Tiger Pro-450. For that matter, Compaq's Prosignia Desktop Model 330 is just \$2,099 and S.A.G.'s Dual PII 450 costs \$2,200. As high-end systems go, they're steals.

PERFORMANCE

Windows Apps

Micron Millennia 450 Max
NEC Direction SPB 450
Polywell Poly 8450B9
All Computer Brilliantia A6-450
Comtrade Best Buy PC 450
S.A.G. STA Dual PII 450
Tagram Thunderbolt H2750
Compaq Deskpro EP Series Model 6450X
MidWest Micro Office Pro-450
Unicent Avanta B450
NexTrend NexStar 450TNT-C
CyberMax Entrepreneur PII
TigerDirect Tiger Pro-450
Amax Engineering Perspecta BXS450
Dell Dimension XPS R450
iDot.com 450BX2
Quantex QP6/450 SM-4x
Compaq Prosignia Desktop Model 330
Gateway GP6
Sys Technology Sys Performance Pro 450

NOTE: WINSTONE 99 MEASURES A PC'S OVERALL PERFORMANCE WHEN RUNNING THE MOST POPULAR WINDOWS-BASED 32-BIT BUSINESS APPS.

Hear It Roar Ultrafast video made the Millennia, Direction, and Poly the tops for performance. Even so, scores among all systems varied less than 14 percent.

Top 450MHz Screammers

PRODUCT *	Price**	RAM (Tested/Max.)	Graphics Accelerator	Hard Disk/ CD/DVD-ROM	Pros	Cons	Verdict
 NEC Computer Systems Direction SPB 450 (888) 863-2669 InfoLink No. 639	\$2,249	64MB/ 384MB	16MB Diamond Viper V550 AGP	14.4GB/ 32X CD-ROM	Fiery performance; great value.	Where's our removable drive?	☆☆☆☆ The machine to beat.
All Computer Technology Brilliantia A6-450 (800) 775-1953 InfoLink No. 640	\$1,668	64MB/ 768MB	16MB Matrox G200 AGP	10.1GB/ 40X CD-ROM	Superb dollar value; speedy.	Relatively small hard drive.	☆☆☆☆ Pushes your dollars to the max.
Compaq Deskpro EP Series Model 6450X (800) 345-1518 InfoLink No. 641	\$2,299	64MB/ 384MB	16MB Matrox G200 AGP	14.4GB/ 32X DVD-ROM	Excellent configuration, excellent price.	No speakers.	☆☆☆☆ A great reason to go Compaq.
Compaq Prosignia Desktop Model 330 (800) 345-1518 InfoLink No. 642	\$2,099	64MB/ 384MB	16MB STB Velocity 4400 AGP	16.8GB/ 40X CD-ROM	Loaded; priced to move.	No removable drive.	☆☆☆☆ Such a deal.
Comtrade Best Buy PC 450 (800) 969-2123 InfoLink No. 643	\$1,945	64MB/ 512MB	16MB STB Velocity 4400 AGP	14.4GB/ 4.8X/32X DVD-ROM	Sizzling price; loaded; fast.	A few usability glitches.	☆☆☆☆ Put it on your shortlist.
CyberMax Entrepreneur PII (800) 443-9868 InfoLink No. 644	\$1,949	64MB/ 768MB	16MB STB Velocity 4400 AGP	10.2GB/ 35.2X CD-ROM	Buy-me price; good usability.	Smallish hard drive.	☆☆☆☆ Fine dollar value.
Dell Computer Dimension XPS R450 (800) 388-8542 InfoLink No. 645	\$2,279	64MB/ 384MB	16MB STB nVidiaTNT 3D AGP	14.4GB/ 4.8X/32X DVD-ROM	Fetching configuration and price; fine usability.	Another free drive bay would be nice.	☆☆☆☆ A loaded PC that won't let you down.
Gateway GP6 (800) 428-3929 InfoLink No. 654	\$2,268	64MB/ 384MB	16MB STB Velocity 4400 AGP	10.1GB/ 32X CD-ROM	Nice price and configuration; good usability.	Hard drive could be bigger.	☆☆☆☆ Smartly priced.
iDot.com 450BX2 (888) 388-4368 InfoLink No. 646	\$1,764 direct	64MB/ 384MB	16MB STB Velocity 4400 AGP	10.1GB/ 40X CD-ROM	Sweet price.	Relatively small hard drive.	☆☆☆☆ A fair deal, if not speedy.
Micron Electronics Millennia 450 Max (888) 228-9634 InfoLink No. 647	\$2,585	64MB/ 384MB	16MB Diamond Viper V550 AGP	14.4GB/ 6X/32X DVD-ROM	Splendid usability; fine performance.	High price.	☆☆☆☆ Great for productivity, but costly.
MidWest Micro Office Pro-450 (800) 728-8582 InfoLink No. 648	\$2,199	64MB/ 768MB	16MB STB Velocity 4400 AGP	12.7GB/ 24X/2X CD-RW, 4X CD-R	Loaded and priced to move.	No removable drive.	☆☆☆☆ A solid middleweight choice.
Polywell Computers Poly 8450B9 (800) 999-1278 InfoLink No. 649	\$2,599	64MB/ 1,024MB	16MB Diamond Monster Fusion	Dual 10.1GB/ 5X/32X DVD ROM	Rocket performance; loaded.	A tad pricey; hard drive on the small side.	☆☆☆☆ A pedal-to-the-metal contender.

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RATINGS: ☆☆☆☆ EXCELLENT ☆☆☆ GOOD ☆☆☆ ACCEPTABLE ☆☆ POOR ☆ UNACCEPTABLE (continued on page 194)

Top 450MHz Screammers

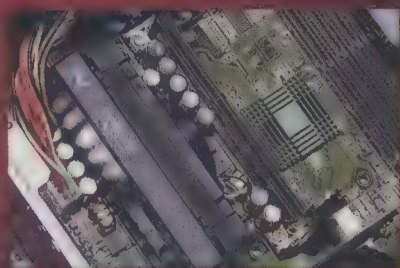
(continued from page 193)

PRODUCT *	Price**	RAM (Tested/Max.)	Graphics Accelerator	Hard Disk/ CD/DVD-ROM	Pros	Cons	Verdict
Quantex Microsystems QP6/450 SM-4x (800) 787-8686 InfoLink No. 650	\$2,499	64MB/ 384MB	16MB STB Velocity 4400 AGP	16.8GB/ 5X/32X DVD-ROM	Jam-packed with extras.	No removable drive.	☆☆☆ A solid value.
S.A.G. Electronics STA Dual PII 450 (800) 989-3475 InfoLink No. 656	\$2,200	64MB/ 1,024MB	16MB Diamond Viper V550 AGP	14.4GB/ 32X CD-ROM	Takes two CPUs; good price.	No removable drive.	☆☆☆ A fine PC that will grow with you.
Tagram System Thunderbolt H2750 (800) 824-7267 InfoLink No. 651	\$2,099	64MB/ 768MB	16MB Matrox Millennium G200 AGP	14.4GB/ 40X CD-ROM	Alluring price; fine performance.	No removable drive.	☆☆☆ Another one for your shortlist.
TigerDirect Tiger Pro-450 (800) 830-0056 InfoLink No. 652	\$1,599	64MB/ 512MB	16MB STB Velocity 4400 AGP	11.5GB/ 32X CD-ROM	Oozes dollar value.	No removable drive.	☆☆☆ A steal for tight budgets.
Amax Engineering Perspecta BXS450 (800) 800-6328 InfoLink No. 653	\$2,618	64MB/ 384MB	16MB STB Velocity 4400 AGP	10.1GB/ 5X/32X DVD-ROM	Fine configuration.	Pricey; relatively small hard drive.	☆☆☆ Better deals abound.
NexTrend Technology NexStar 450TNT-C (877) 833-8833 InfoLink No. 655	\$2,509	64MB/ 1,024MB	16MB Diamond Viper V550 AGP	14.4GB/ 4.8X/32X DVD-ROM	Loaded.	High price.	☆☆☆ Great configuration, but you'll pay for it.
Sys Technology Sys Performance Pro 450 (800) 613-9963 InfoLink No. 657	\$1,999	64MB/ 1,024MB	16MB Diamond Viper V550 AGP	10.1GB/ 40X CD-ROM	Enticing price.	Relatively small hard drive.	☆☆☆ You could do worse for the dollar.
Unicent Technologies Avanta B450 (800) 320-1475 InfoLink No. 658	\$2,199	64MB/ 384MB	16MB Matrox Millennium G200AGP	14.4GB/ 4.8X/32X DVD-ROM	Plentiful configuration.	A little pricey; internal design needs work.	☆☆☆ A fair but not outstanding value.

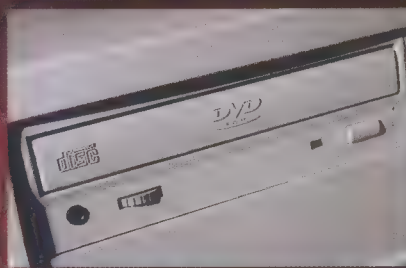
* FOR MORE INFORMATION GO TO WWW.PCCOMPUTING.COM/INFOLINK. ** ESTIMATED STREET PRICE.

RATINGS: ☆☆☆☆ EXCELLENT ☆☆☆ GOOD ☆☆☆ ACCEPTABLE ☆☆ POOR ☆ UNACCEPTABLE

USABILITY CLOSE-UP 450MHz Supersystems



DOUBLE CPU S.A.G. Electronics' STA Dual PII 450 grows with you thanks to the two CPU slots.



NO CD-ROM Well-stocked systems such as Dell's Dimension XPS R450 have replaced CD-ROM drives with DVD.



SPRING CLEANING Wild ribbons, power cords, and a bar make reaching the Unicent Avanta B450's memory and PCI slots difficult.

Priced to Move

If you're holding out for a Pentium III system, take a hard look at the apps you use. Ultimately, the Pentium III will boost the performance of 3-D geometry, animation, full-motion video, and speech recognition. But the applications that can harness this power are still generations away. The Pentium III is hurling 450MHz Pentium II system prices southward. Today's top-drawer machines loaded to the gunwales cost approximately half of what their lesser-equipped, lesser-powered equivalents cost only two years ago. As far as dollar value goes, the 450MHz Pentium II is the place to be.

Ten of the 20 systems PC Computing Labs tested cost less than \$2,200 (the All Computer Brilliant A6-450 costs an amazingly low \$1,668). All the machines come with 64MB of memory, a 10GB or larger hard drive, a 16MB AGP accelerator, and a 17-inch monitor. Most come with far fatter configurations, yet their prices hover in a budget-friendly range.

The NEC Direction SPB 450 won top billing for its speed, design, and price. Performance wasn't a make-or-

break point with these systems, as they were all close on each other's heels. However, the Direction, along with the Micron Millennia 450 Max, Polywell Poly 8450B9, All Computer Brilliant A6-450, Comtrade Best Buy PC 450, S.A.G. STA Dual PII 450, and Tagram Thunderbolt H2750, edged out the competition.

Compaq's Deskpro EP Series Model 6450X won many converts on account of its ample configuration and low price. But keep the All Computer Brilliant A6-450, Tiger Pro-450, and iDot 450BX2 in mind as well—all of these cost less than \$2,000 fully configured.

The Millennia 450 Max won praise for its performance edge and splendid usability—even if its \$2,585 price was a little off-putting. The Dell Dimension XPS R450, Gateway GP6, and CyberMax Entrepreneur PII also give usability a good name and are well worth your consideration.

PC Computing Labs testing was conducted by JULI DAVIS and IBRAHIM GUL. Lab Manager, LULIT BEZUAYEHU.

DECISION MAKER

WHICH 450MHz SYSTEM IS RIGHT FOR YOU?

1 Choose the factor that's most important.

2 Choose the next most important factor.

3 What else is important?

4 For your needs, the best system to buy is . . .



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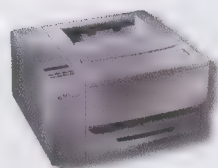
We're GCC Technologies, and our printers are sold direct against some of the most famous names in the computer industry. This creates a buying opportunity for those who understand a basic principle of free enterprise: Selling direct is better for the manufacturer and buying direct is better for the customer.

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For complete details, call the 800 number below. And, for the record, yes, our printers have wonderful technology too. It's just that you don't have to pay extra for it.



ELITE 12 Series

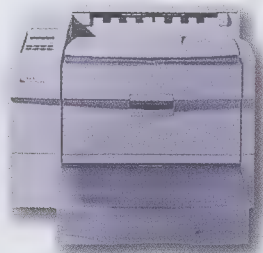
12 pages per minute
Maximum Print Area: 8.5" x 14"
Letter/A4, legal, envelope
250-sheet Universal Tray
PostScript® Level 2 compatible, PCL 5
35 PostScript fonts, 15 PCL fonts,
45 downloadable fonts
RAM expandable to 64 MB
1st year Platinum Exchange Warranty
EtherTalk®, LocalTalk®, TCP/IP
Ethernet (10 BaseT), Bi-directional Parallel
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ELITE 1212 \$1199

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ELITE XL 20 Series

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PostScript® Level 2 compatible, PCL 5
35 PostScript fonts, 15 PCL fonts,
250 downloadable fonts
RAM expandable to 64 MB
1st year Platinum Exchange Warranty
EtherTalk®, LocalTalk®, NetWare™, TCP/IP
Ethernet (10 BaseT, AAUI), Bi-directional Parallel
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ELITE XL 20/600 \$1799

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ELITE XL 20/1200 \$2199

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Business Lease \$76 Month/36 months**



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45 downloadable fonts
RAM expandable to 64 MB
1st year Platinum Exchange Warranty
EtherTalk®, LocalTalk®, TCP/IP
Ethernet (10 BaseT, 10 Base2), Parallel
2nd Paper Feeder*
(Includes 250-sheet Universal Tray) Add \$ 319
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2nd year Platinum Exchange Add \$139
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*The Elite 12/600, Elite 1212, and the Elite XL 608 LC support one additional paper feeder. The Elite XL 20/600, Elite XL 20/800, and the Elite XL 20/1200 support two additional trays. **Leasing provided by independent leasing companies to qualified customers. Lease payments based on 24-month and 36-month terms. Lease terms subject to change without notice or obligation.

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IT'S FOR YO

PROBLEM

Sick of dropped calls, lousy connections, and know-nothing sales types?


SOLUTION

Enough already! PC Computing Labs test all the best digital phones and services.

Picture the canary swallowing the cat. It's not a pretty scene and tends to make notebook designers queasy. After all, 10 years from now your favorite travel companion probably won't be a portable PC with a modem in it—it'll be a mobile phone with a computer in it. You'll be far more productive than you are today, and, most important, you'll finally have room in your luggage for a trench coat.

Between now and then, a multibillion-dollar war between digital phone standards—CDMA, GSM, PCS, and TDMA—will rage across the globe. In fact, it's already raging. Digital

PHOTOGRAPH BY MARK JORDAN



U

phone service recently surpassed analog service in the United States. Various service carriers will ascend and merge. A few will collapse. The Internet's role in *all* forms of communication will continue to skyrocket. Costs will plummet. And wire-based phone transmissions will ultimately take their fuddy-duddy place alongside Morse code.

Be advised: Digital wireless communications will fundamentally change the way you work. In fact, cellular technology—digital or analog—has in all likelihood raised your productivity already. Would you head for the airport and leave your notebook behind? Maybe. But go out of the house without your cell phone? Not a chance. With global digital

BY MARTY JEROME

cellular service, any message will be able to reach you from anywhere in the world, in any form: page, short messaging service (SMS), fax, e-mail, voice, you name it. And while the full promise of that future is still years away, handheld phones have already put much of this within your reach.

Alphabet Soup Today's digital phones may be capable, but why is buying one so confusing? The answer is unpleasant: You happen to be an unlucky refugee in a war zone.

Cellular carriers are building digital infrastructures as fast as they can—and no wonder. Analog networks are groaning under impossible loads. As millions of new customers flock to cell phones every month, it's clear that the division of service areas into smaller and smaller cells is too expensive and ineffective.

Using roughly the same investment in infrastructure as analog networks, digital cellular networks promise a 10- to 15-fold increase in network capacity. From a carrier's point of view, that means a 10- to 15-fold cost savings—savings that will eventually reach you.

But in the meantime, it's war.

Two superpower technologies are fighting for supremacy in digital telephony: time division multiple access (TDMA) and code division multiple access (CDMA). Each has its strong points. TDMA is the established player: tested under fire, well understood. CDMA is the firebrand, the rookie. It promises two key advantages over TDMA: up to twice the capacity and better

voice quality. Trouble is, it hasn't entirely proven these advantages in battle.

Global system for mobile communications (GSM) phones use TDMA technology but rely on a different part of the airwave spectrum. Likewise, personal communications service (PCS) phones typically—though not exclusively—use CDMA technology but live in a different radio-wave neighborhood. Yet another choice is Nextel's proprietary scheme called Integrated Digital Enhanced Network (iDEN), which is based on TDMA technology.

Are you still with us? Then here's what you should care about: capacity and coverage. Carriers for all these technologies promise national coverage. But if you've ever made a sales call in Fort Dodge, Iowa, or Marbleton, Wyoming, you may beg to disagree. The same is true with capacity. Service providers say service is consistent across the board, but are you more likely to suffer dropped calls in Springfield, Ohio, using a TDMA phone or a GSM phone?

So what's a refugee of the digital-phone war to do?

Rule No. 1: Choose your service provider first, then choose a phone. Service costs and roaming fees will quickly dwarf the price of hardware.

Rule No. 2: If you travel extensively outside the United States, keep in mind that GSM is the reigning standard in Europe and Asia.

Rule No. 3: Be prepared to move in the middle of the night. Phones are relatively cheap. And service providers inspire no loyalty. Use your dollars accordingly.

HOW IT WORKS

Digital Phone Standards

Virtually all cellular carriers plan to shift from analog to digital technology. The most pressing reason? Capacity. Digital technology brings a 10- to 15-fold increase in capacity over analog. But which digital standard will prevail?

AMPS



Pros Analog technology in the form of advanced mobile phone service (AMPS) is proven and pervasive.

Cons Not enough bandwidth; high costs; limited features; doesn't communicate directly with PCs.

Verdict Consider it the AM radio band of cellular technology. It won't go away, but you'll forget it's there.

TDMA

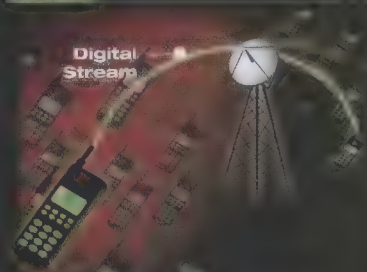


Pros From 3 to 15 times the capacity of analog; caller ID; text messaging; better battery life; seamless roaming between AMPS and PCS.

Cons Can cause interference with wide range of electronic devices; voice quality can be inferior to AMPS.

Verdict The most established player for cellular digital technology.

CDMA



Pros All the advantages of TDMA with twice the capacity; better voice quality; and lower costs.

Cons Some of its promises are still theoretical; networks could become unstable under heavy loads.

Verdict Early technical glitches aside, CDMA promises to be the digital standard by 2010.

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At Your Service

Fie on the phone companies. Comparison shopping for wireless service providers is madness. Pricing structures are a witches' brew of asterisks, legalese, and inflated claims, so expect your first bill to teem with hidden charges. Sanity will eventually settle over digital cellular service, but until then let PC Computing Labs show you how to get the most for your money.

As much as you like or dislike any digital phone, it's ultimately just a candy-bar wrapper around a service provider. So which is sweetest for the buck? That depends on how often and for how long you tend to use your phone. It further depends on where you travel with your phone. Then there are the package deals and special promotions that you should take into consideration.

Confused? You're not alone.

The good news: There's enough competition among providers that prices are squeezing into ever-narrowing ranges. Also, virtually all service providers offer voice mail, paging, and text. But you'll pay extra for these.

If you live by your phone and travel extensively, AT&T Wireless is the best bet going. It offers national coverage with no roaming fee. Its \$90 base rate is steep, but you get 600 minutes—that's an hour and a half more than comparable packages offer.

Wireless Phone Services

Office number, home number, wireless phone number, pager number, hotel numbers when you travel, it's hard to keep it all straight. True convenience is one number that follows you on the road. Clients and colleagues can reach you quickly and easily without having to sift through a list of possibilities. And you'll have peace of mind knowing you can count on the dependability and quality of the largest digital wireless network in the U.S.

Interactive VoiceMail Tutorial

Whether you're a new or current AT&T Wireless VoiceMail customer, or just thinking about the benefits AT&T Wireless VoiceMail can have for your business, this [interactive tutorial](#) will show you just how easy it is to set up and use AT&T Wireless VoiceMail for all of your voice messaging needs.

Best Overall At first glance, AT&T Wireless isn't a bargain. But no roaming fees means you save big.

AirTouch also has no roaming fee, and its \$40 base rate buys you 200 weekday minutes—or 1,000 weekend minutes. And its coverage is nationwide.

Sprint PCS should be your first choice if you don't need to roam. It gives you 600 minutes a month for just \$70, and its coverage is nationwide. Unfortunately, the service charges a ludicrous 69 cents per minute for calls outside your service area.

DIGITAL PHONES

Service Coverage

Which will it be: GSM, CDMA, or TDMA? Don't get mired in the alphabet soup. What matters most is what's available in your area—and in the places you travel. The surest bet? TDMA, which covers the majority of the United States.

- GSM
- CDMA
- TDMA



Top Service Providers

Your first move when shopping for a digital phone is finding a service provider. Not all offer national coverage, and roaming charges can mount quickly when you leave your primary calling area. The best services are those that dish out savings for heavy use.

PROVIDER *	Monthly Rate	Roaming Fee	Data Accepted	Standard	Verdict
Nationwide					
AT&T Wireless (800) 462-4463 InfoLink No. 685	\$90 for 600 minutes	None	Voice, paging, text	TDMA	☆☆☆☆☆ The service to choose for heavy use near and far.
AirTouch (800) 624-7868 InfoLink No. 686	\$50 for 250 minutes (or 1,000 weekend minutes)	None	Voice, paging, text	CDMA	☆☆☆☆ Good value if you roam the globe.
Sprint PCS (800) 480-4727 InfoLink No. 687	\$70 for 600 minutes	69 cents per minute	Voice, paging, text	CDMA	☆☆☆☆ The best one for heavy local calling—but don't stray far.
Cellular One (800) 235-5663 InfoLink No. 688	\$40 for 170 minutes	75 cents per minute	Voice, paging, text	TDMA	☆☆☆ Overpriced for regional coverage.
GTE Wireless (800) 551-4483 InfoLink No. 689	\$50 for 250 minutes	38 cents per minute within state; 99 cents per minute out of state	Voice, paging	CDMA	☆☆☆ Fine for local calls—but roaming will cost you.
Nextel Communications (800) 639-8359 InfoLink No. 690	\$90 for 500 minutes	None	Voice, paging, text	iDEN	☆☆☆ Proprietary phone protocol makes it risky.
Northeast					
Omnipoint Communications (888) 666-4611 InfoLink No. 691	\$50 for 500 minutes	49 cents per minute	Voice, paging, text	GSM	☆☆☆ Too expensive for a slender slice of the country.
Southwest					
Pacific Bell Wireless (888) 454-5372 InfoLink No. 692	\$50 for 250 minutes (or 500 weekend minutes)	75 cents per minute for incoming calls; 60 cents per minute for outgoing calls	Voice, paging, text	GSM	☆☆☆ Fine for those who stay close to home.
*FOR MORE INFORMATION GO TO WWW.PCCOMPUTING.COM/INFOLINK .					

RATINGS: ☆☆☆☆ EXCELLENT ☆☆☆ GOOD ☆☆☆ ACCEPTABLE ☆☆ POOR ☆ UNACCEPTABLE

Calling All Phones

Love your provider, hate its hardware. As digital service providers become more alike in pricing and offerings, differences in phone design are spreading as wide as a politician's smile. Cellular phone preferences are a highly personal matter. But as PC Computing Labs discovered, certain design features win universal praise while others get the raspberry.

Go ahead, touch it; phones don't bite. Physical design emerged as a key priority among *PC Computing's* usability testers. No surprises here: Unlike a notebook, which hangs off your shoulder like a kill from the hunt, a cell phone travels *on* you—all day long. More important, you wear it on your face. It gets close enough to kiss you.

Testers understandably favored the petite—as long as the phone wasn't too petite. Unlike the love affair with miniaturization that prevails in many Asian and European countries, Americans tend to balk when the LCD panel shrinks to an unreadable size, when the mouthpiece drops down only to their nose, or when the device feels unduly fragile.

Size and weight weren't the only design factors that mattered. Can you open your phone and answer it quickly (to shut the damn thing up when it rings in the middle of a meeting)? And what about shape? To simultaneously listen to and speak into the phone, must you contort your face ridiculously? Do pudgy paws aim for keypad buttons but go caroming onto the wrong keys? Does the LCD panel require night-vision goggles or a visit to the optometrist?

These were the minimum standards. The going got rough when our testers began evaluating the phones' digital interfaces. We asked testers not only to place and receive several calls but also to send messages

Best Design The I-can't-believe-it's-a-phone winner, **Motorola's StarTac 8000** is the coolest-looking phone you can own. It's miraculously small and easy to use.



Best Overall The Nokia n6190 takes top honors for its small size, big readable LCD, and straightforward menuing. It's deceptively sophisticated.

and pages. Additionally, we asked them to program the phones to take advantage of features like call forwarding and voice mail. Simple menus beat feature-rich, over-designed affairs that try to do too much. When we tallied the results, it was as if testers collectively said, "Keep it simple. It's just a phone."

One surprise from our tests: Battery life mattered less than we'd anticipated. Testers apparently believed that, except for putting on the back nine, they'd always be in close range of an AC outlet or a car's cigarette lighter to recharge. Hope they're right. Still, the phones varied widely, from more than six hours of talk time for the best models to less than two hours for the piggist ones.

Yakety-Yak When all was said and done, the Nokia n6190 and n5190 were standouts. Their total satisfaction scores popped well above the pack, thanks to their small size, rugged designs, and smart but simple interfaces. Also, their big, readable LCD panels bring relief to the eyes. These two should be on your shortlist—the Nokia n6190 in particular.

The Sprint PCS Touchpoint, the Nextel i1000, and Mitsubishi's Wireless Digital GSM PCS also scored well above the pack. Kudos to the Nextel i1000's password protection and an earpiece that defends buttons against accidental bumping. The Mitsubishi Wireless Digital GSM's elegant menus are the best you'll find (though the LCD's backlighting is weak). The Sprint PCS Touchpoint's menus are excellent as well. And testers particularly liked its scheduling and alarm features.

The Motorola StarTac 8000 and Qualcomm's Q phone would have scored higher were it not for undersized buttons. Testers loved the StarTac's interface and the fact that you could hold the phone between ear and shoulder while changing a diaper or tying your



shoe. The Q phone won praise for its lack of an antenna: You won't be in a budget meeting feeling like an extraterrestrial beaming communiqués to the mother ship.

Phones that brought technical innovation to the party sparked a fair amount of interest, even if some of these features smacked of novelty rather than usability. Testers liked the hands-free, voice-activated calling in the Samsung SCH-2000 and the speakerphone in the Nextel i1000. The interactive calendar in the Nokia n6190 is a likable feature, most notably because it's straightforward and easy to use.

On the other hand, Nokia heaped too much concept and not enough delivery into its crossbred phone/PDA Nokia 9000il Communicator. It's simply too complicated, dripping with overwrought features. Accessing the Web on its tiny LCD is a great way to become seasick. Also, it's too bulky.

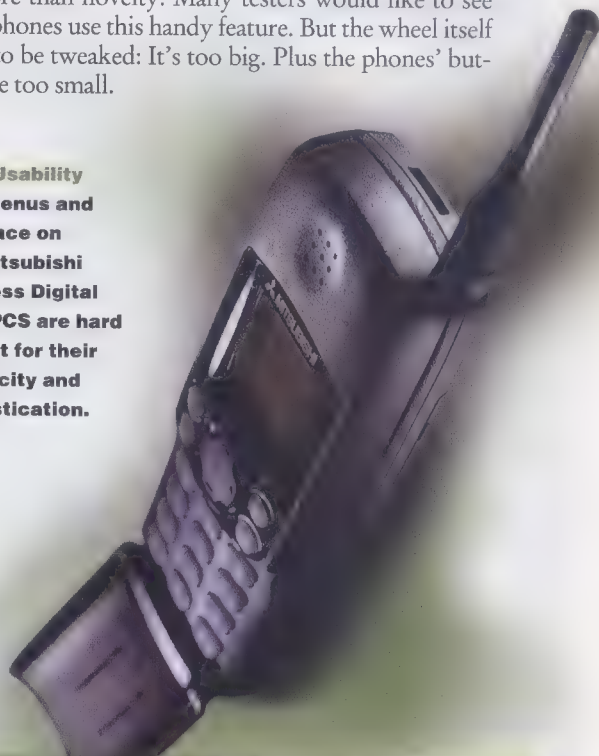
Gabmeisters for whom battery life is paramount should take a hard look at these four phones: Qualcomm's QCP-820 and QCP-2700, Sony's D-WAVE Astra CM-B1201, and Motorola's StarTac 8000. Hats off to the StarTac, in particular, for its long battery life and pleasingly tiny size.

Touch Tone Testers were quick to note how far usability has yet to go on digital phones. All of the Ericsson models drew boos for their undersized LCDs. Worse, their menus assault you with too much onscreen information. Programming on the Motorola g520 and M77A will send you running to a pay phone. And the included manuals offer no help.

In sharp relief, the ease of programming the Nokia n5190 and n6190 is superb. Ditto Sprint's PCS Touchpoint, which guides you step by step through a logical set of menus. With a little practice, a sharp-minded chimpanzee could enter and delete phone numbers.

The scrolling wheel on the Sony D-WAVE Astra CM-M3300 and the D-WAVE Zuma CM-Z100 made for more than novelty. Many testers would like to see other phones use this handy feature. But the wheel itself needs to be tweaked: It's too big. Plus the phones' buttons are too small.

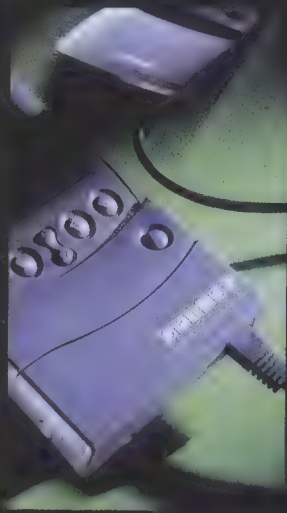
Best Usability
The menus and interface on the Mitsubishi Wireless Digital GSM PCS are hard to beat for their simplicity and sophistication.



EXTRAS

Get More from Your Digital Phone

You can't run an electric razor from a phone—yet. But you can buy plenty of accessories that let you take advantage of your phone. Better still, a raft of devices are coming to market that add digital phone capabilities to gadgets you already own.



Option Step-On GSM Adapter It weighs only a few ounces, and it lets you add phone features to your 3Com Palm III.

Option: www.option.com
\$160 est. street price / InfoLink No. 893



GSM/PCS 50K GlobalAccess Modem Hook up your notebook to your cell phone for Web surfing anywhere.

Xircom: (800) 435-4626 / \$210 est. street price / InfoLink No. 894



RangeSim PCS Antenna This antenna extends the range of your cell phone by up to 100 percent.

RangeStar: (877) 866-8811 / \$30 est. street price / InfoLink No. 895

Top Digital Phones

GSM? AMPS? TDMA? How do you choose a cell phone? First things first: Pick your provider. That will tell you which technology the phone needs. Then check out our handy guide below for the top phones in performance, usability, and features.



PRODUCT *	Price**	Compatible Services	Size/Weight	Data Accepted	Pros	Cons	Verdict
Nokia n6190 (888) 665-4228 InfoLink No. 896	\$199	AMPS, GSM	5.0 by 1.9 by 0.8 in./ 5.9 oz.	SMS, Web access, e-mail, voice mail	Features galore; sterling interface and LCD; easy programming.	Can we have a tad more battery life?	☆☆☆☆☆ A phone that says, "Look no further."
Bosch Telecom World 718 (800) 296-4268 InfoLink No. 897	\$300	GSM	5.6 by 3.0 by 0.7 in./ 6.1 oz.	SMS, e-mail, voice mail	Rugged; easy- to-read LCD; oversized.	Pricy; most quickly fleeting battery life.	☆☆☆☆ Solid GSM choice for short calls.
Mitsubishi Wireless Digital GSM PCS (800) 888-9879 InfoLink No. 898	\$99	GSM	5.3 by 1.9 by 1.2 in./ 5.8 oz.	SMS, Web access, e-mail, voice mail	Excellent interface; unbeatable price.	A tad tubby; weak backlighting.	☆☆☆☆ Your best choice for a GSM phone.
Motorola StarTac 8000 (800) 331-6456 InfoLink No. 899	\$545	GSM	3.3 by 2.3 by 1 in./ 3.7 oz.	SMS, Web access, e-mail, voice mail	Miraculously small; shrewd design; easy interface.	Gouging price; buttons could be bigger.	☆☆☆☆ One of the coolest phones to look at and use.
Motorola ST7760 (800) 331-6456 InfoLink No. 900	\$500	AMPS, CDMA	3.3 by 2.3 by 1 in./ 3.7 oz.	SMS, paging, voice mail	Big LCD; good interface.	Price hurts; tiny keys.	☆☆☆☆ A pricey but easy-to-use phone.
Nextel Communications i1000 (800) 639-8359 InfoLink No. 901	\$299	iDEN	4.5 by 2.2 by 1.2 in./ 6.0 oz.	SMS, e-mail, voice mail	Smart design; password protection.	Pricy hardware; uses proprietary service.	☆☆☆☆ An inexpensive candidate for digital service.
Nokia n5190 (888) 665-4228 InfoLink No. 902	\$124	GSM	5 by 1.5 by 1.2 in./ 6.0 oz.	SMS, Web access, e-mail, voice mail	Superb interface; irresistible price; easy to program.	Design lacks flair.	☆☆☆☆ An excellent pick for GSM.
Qualcomm 800 MHz Q phone (800) 349-4188 InfoLink No. 903	\$299	CDMA	4.0 by 2.2 by 1 in./ 5.8 oz.	SMS, e-mail, voice mail	No antenna; pleasing interface.	Clumsy keypad; pricy.	☆☆☆☆ A smart choice for CDMA.
Sprint PCS Touchpoint (800) 480-4727 InfoLink No. 904	\$180	CDMA	5.2 by 2.1 by 0.9 in./ 5.2 oz.	Text messaging, voice mail	Superb interface; solid design; comfortable weight.	Middling battery life.	☆☆☆☆ Your best bet for a PCS phone.
Ericsson Mobile Phones CF768 (800) 374-2776 InfoLink No. 905	\$129	GSM	4.1 by 1.9 by 0.9 in./ 4.7 oz.	SMS, voice mail	Pleasingly petite.	LCD is unreadably small; clumsy interface.	☆☆☆ Good, but be prepared to squint.

*FOR MORE INFORMATION GO TO WWW.PCCOMPUTING.COM/INFOLINK. **EST. STREET PRICE; SOME VARY WITH CARRIER.

RATINGS: ☆☆☆☆ EXCELLENT ☆☆☆ GOOD ☆☆☆ ACCEPTABLE ☆☆ POOR ☆ UNACCEPTABLE

Top Digital Phones

PRODUCT *	Price**	Compatible Services	Size/Weight	Data Accepted	Pros	Cons	Verdict
Ericsson Mobile Phones KF 788 (800) 374-2776 InfoLink No. 906	\$200 to \$250	AMPS, TDMA	4.2 by 1.9 by 0.9 in./ 5.4 oz.	SMS, voice mail	Straightforward design; genuinely usable buttons.	Tiny LCD; awkward interface; expensive.	☆☆☆ No frills, but your best TDMA choice.
Motorola g520 (800) 331-6456 InfoLink No. 907	\$150	GSM	5.5 by 1.9 by 1.6 in./ 6 oz.	SMS, e-mail, voice mail	Excellent price; agreeable design.	Infuriating interface; lame manual; confusing to program.	☆☆☆ Good dollar value, but you'll need a tutorial.
Qualcomm QCP-2700 (800) 349-4188 InfoLink No. 908	\$150	AMPS, CDMA	5.7 by 2.0 by 1.5 in./ 7.6 oz.	SMS, voice mail	Great battery life; excellent price.	Bulky design.	☆☆☆ A fine phone for tight budgets.
Qualcomm QCP-820 (800) 349-4188 InfoLink No. 909	\$150	CDMA	5.7 by 1.9 by 0.9 in./ 6.5 oz.	SMS, voice mail	Best battery life of the lot; excellent price.	A bit on the heavy side.	☆☆☆ The one to choose when you're far from power outlets.
Samsung SCH-2000 (888) 987-4357 InfoLink No. 910	\$180	CDMA	4.8 by 2.0 by 1.0 in./ 5.4 oz.	SMS, voice mail	Voice activation; smart interface.	Shape is best suited to extraterrestrials.	☆☆☆ With a little sculpting, this would be a star.
Sony D-WAVE Astra CM-B1201 (800) 578-7669 InfoLink No. 911	\$149	AMPS, CDMA	5.7 by 2.0 by 1.5 in./ 7.5 oz.	SMS, e-mail, voice mail	Novel wheel for scrolling; excellent battery life.	Frustrating interface; hefty.	☆☆☆ Priced right, but lacks refinement.
Sony D-WAVE Astra CM-M3300 (800) 578-7669 InfoLink No. 912	\$149	AMPS, CDMA	5.7 by 2.0 by 1.5 in./ 7.8 oz.	SMS, e-mail, voice mail	Superb battery life.	Infuriating menus; small buttons; hefty.	☆☆☆ Wait for the upgrade.
Sony D-WAVE Zuma CM-Z100 (800) 578-7669 InfoLink No. 913	\$199	CDMA	3.6 by 2.4 by 1.0 in./ 5.3 oz.	SMS, e-mail, voice mail	Pocket-pleasing weight; scrolling wheel.	Short battery life; rough design edges.	☆☆☆ A fine starting point.
Ericsson Mobile Phones CA 638 (800) 374-2776 InfoLink No. 914	\$149	GSM	5.1 by 1.9 by 1.3 in./ 5.0 oz.	SMS, e-mail, voice mail	Fine fit and finish.	Teeny-weeny LCD; fleeting battery life.	☆☆ Looks pretty but has usability problems.
Motorola M77A (800) 331-6456 InfoLink No. 915	\$199	AMPS, TDMA	13.9 cubic in./ 9.8 oz.	SMS, Web access, e-mail, voice mail	Web access; decent price.	Nightmarish programming; LCD refresh lag; bulky.	☆☆ You won't save a penny with this one.
Nokia 9000ii Communicator (888) 665-4228 InfoLink No. 916	\$899	GSM	6.8 by 2.5 by 1.5 in./ 13.9 oz.	E-mail, Web access, voice mail	Web access; PDA capability.	Confusing interface; outrageous price; hefty.	☆☆ Not ready for prime time.

*FOR MORE INFORMATION GO TO WWW.PCCOMPUTING.COM/INFOLINK. **EST. STREET PRICE; SOME VARY WITH CARRIER.

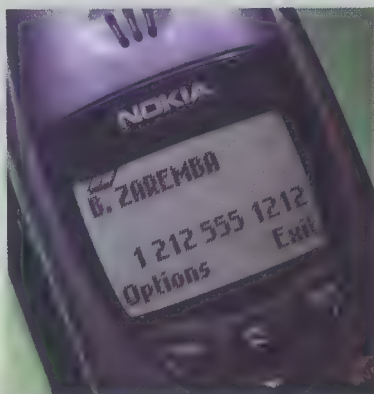
RATINGS: ☆☆☆☆ EXCELLENT ☆☆☆ GOOD ☆☆☆ ACCEPTABLE ☆☆☆ POOR ☆ UNACCEPTABLE

Usability and Performance

Newfangled features make great advertising copy, but a portable phone is likely to become a missile hurled across the room if its usability doesn't live up to billing. What is the recipe for a well-designed phone? There are no hard and fast rules. Often as not, subtle finesse distinguishes a good phone from a bad one. Ultimately, it's all in the details.

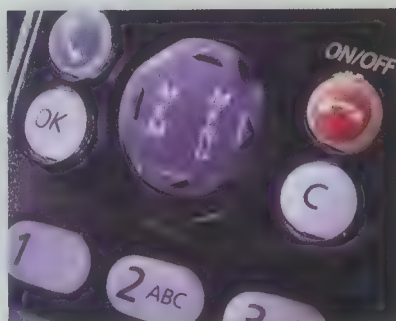
USABILITY CLOSE-UP

Digital Phones



Read Me A big LCD panel with adequate backlighting, like that on the Nokia n6190, is mercy on the eyes. Just as important: an uncluttered interface.

Mouseless Because phones lack a conventional pointing device, phone makers must devise creative ways to scroll around menus. Case in point: the navigation button on the Mitsubishi Wireless Digital GSM PCS.



Fickle Fingers If you have to dial your phone with a pencil, its buttons are too small. The Ericsson KF 788's big buttons accommodate any size hand.

PERFORMANCE

Battery Life (hours:minutes)

Qualcomm QCP-820	6:10
Sony D-WAVE Astra CM-M3300	6:07
Qualcomm QCP-2700	5:59
Motorola ST7760	5:58
Sony D-WAVE Astra CM-B1201	5:57
Motorola StarTac 8000	5:56
Sprint PCS Touchpoint	5:55
Nextel i1000	5:54
Nokia n5190	5:53
Qualcomm 800 MHz Q phone	5:52
Nokia n6190	5:51
Samsung SCH-2000	5:50
Nokia 9000i Communicator	5:49
Motorola M77A	5:48
Mitsubishi Wireless	5:47
Motorola g520	5:46
Ericsson KF 788	5:45
Ericsson CF768	5:44
Sony D-WAVE Zuma	5:43
Ericsson CA 638	5:42
Bosch World 718	5:41

NOTE: BATTERY TESTS MEASURE AVERAGE BATTERY LIFE DURING CONTINUOUS USE.

Fading Fast If the batteries die just as you're about to cinch a sale, it's time for a different phone. The Qualcomm QCP-820 and QCP-2700 and the Sony D-WAVE Astra CM-M3300 lasted longest on a charge. To our surprise, Motorola's tiny StarTac also fared well.

Which Wireless?

The phone is the simplest piece of technology you use, aside from staplers and perhaps your socks. But yank the wire, and suddenly purchase decisions seem impossibly complicated. The trick, of course, is to pick a service provider first, then choose your hardware. But the inescapable fact is that the two go hand in hand.

You travel far and wide—and live by your phone.

The Nokia n6190 is your best bet for GSM. If you travel overseas, it's definitely the way to go. At \$199, it's not the cheapest phone you'll find. But its usability is unsurpassed.

➤ **For global travel, choose the GSM Nokia n6190.**

Your company gets good rates on PCS service.

Look no further than Sprint's PCS Touchpoint. Its menus and interface are first-rate, and its design is exemplary.

➤ **Your best PCS partner is the Sprint Touchpoint.**

You need the cheapest rate you can get. Say what you will about Nextel's proprietary service. Its phone is expensive, but charges on its network—free for roaming—will save you a bundle.

➤ **On a budget? Choose the Nextel i1000.**

When it's not in use, you wish your phone would disappear. Motorola's StarTac 8000 is pricey—\$545. But at

➤ **Travel light with Motorola's StarTac.**

3.7 ounces, it'll make you forget you're carrying it. And for all its feathery weight, it has a great battery life—almost 5 hours.

Your company is committed to TDMA. Ericsson's

KF 788 costs a rather steep \$300. Its LCD is undersized. But it's the best bet going for TDMA.

➤ **For TDMA, look no further than the Ericsson KF 788.**

You want a phone that doesn't require tutorials, courses, or a thick manual to place a call.

Mitsubishi's Wireless Digital GSM PCS has a first-rate interface for ease of use. And at just \$99, how can you lose?

➤ **Keep it simple with the Mitsubishi Digital GSM PCS phone.**

You want a phone with the longest battery life possible. The longest

charge you'll get from a digital phone is 6.27 hours, courtesy of the Qualcomm QCP-820.

➤ **For the most juice, choose the Qualcomm QCP-820.**



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CDW wins the 1998 Better Business Bureau Torch Award for Marketplace Ethics.

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- 512KB Level 2 cache
- 100MHz Front Side Bus Technology (FSB)
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- 4.3GB Ultra ATA hard drive
- Video: 8MB SDRAM
- Microsoft Windows[®] 95
- 3-year limited warranty

Monitor sold separately

\$1128.34 CDW 127794

COMPAQ Deskpro EN

NEW

- 450MHz Intel Pentium[®] II processor
- 512KB Level 2 cache
- 32MB ECC SDRAM
- 4.3GB SCSI hard drive
- 24X CD-ROM adapter
- 10/100 Ethernet

Monitor sold separately

\$1849.46 CDW 127811

IBM IBM PC 300GL Small Business PC

- 400MHz Intel Pentium[®] II processor
- 8.4GB hard drive
- 64MB RAM
- 56Kbps integrated modem
- Windows[®] 98
- Microsoft Office

Monitor sold separately

\$1418.37 CDW 142857

TOSHIBA Equium 7100

- 350MHz Intel Pentium[®] II processor
- 4GB hard drive
- 64MB RAM
- 32X CD-ROM drive
- 10/100 Ethernet

\$1316.78 CDW 115244

DESKTOPS

COMPAQ

Prosignia 300 Series desktops

333 Celeron 32MB 8.4GB 1161.74

350/P II 64MB 10GB 40X CD 56K MS Office 1398.45

366 Celeron 32MB 8.4GB 40X CD 56K MS Office 1128.37

450/P II 64MB 10GB 40X CD 56K MS Office 1698.57

Deskpro EP Series desktops

300 Celeron 32MB 4.3GB 733.70

333 Celeron 32MB 4.3GB 744.57

333 Celeron 64MB 6.4GB 32X 1032.61

350/P II 64MB 4.3GB 1128.34

350/P II 64MB 10GB 10/100 1438.50

400/P II 64MB 10GB 32X 1553.76

400 Celeron 64MB 6.4GB 32X 1118.45

450/P II 64MB 10GB 32X 1688.17

Deskpro EN Series desktops

333 Celeron 32MB 3.2GB 10/100 1027.17

333 Celeron 32MB 3.2GB 949.56

333/P II 32MB 4.3GB 10/100 1798.85

333/P II 32MB 6.4GB 24X 1411.76

350/P II 64MB 10GB 10/100 1588.24

400 Celeron 64MB 6.4GB 10/100 1269.23

400 Celeron 64MB 6.4GB Win 95 1192.31

400/P II 32MB 6.4GB 1360.22

400/P II 64MB 6.4GB 24X 10/100 1693.55

400/P II 64MB 6.4GB 32X 10/100 1998.75

450/P II 64MB 10GB 10/100 1935.48

Deskpro EN Series mini-towers

300 Celeron 32MB 3.2GB 32X 1032.61

333 Celeron 32MB 6.4GB 32X 1184.76

333 Celeron 32MB 6.4GB 32X 10/100 1258.64

333/P II 32MB 6.4GB 24X 10/100 1398.42

350/P II 32MB 6.4GB 24X 10/100 1529.41

350/P II 64MB 4.3GB 24X 10/100 1898.45

400/P II 64MB 9.1GB 24X 10/100 2279.57

450/P II 64MB 8.4GB 32X 10/100 1849.46

450/P II 64MB 9.1GB 32X 10/100 2413.98

Presario desktops

333 Celeron 96MB 9GB 32X 896.00

Cyrix 333 MMX 32MB 4GB 32X 56K 596.00

3200/AMD 128MB 8GB 10Mbps 32X 56K 1096.00

350/P II 128MB 10GB 32X 10Mbps 32X 1296.00

400/AMD 128MB 12GB DVD 1496.00

56K 100 MB Zip 1496.00

450/P II 128MB 12GB DVD 56K 10Mbps 1896.00

450/P II 128MB 19GB DVD 1.5Mbps digital modem 2196.00

IBM

PC 300GL Series desktops

300 Celeron 32MB 3.2GB 857.19

300 Celeron 32MB 3.2GB 857.19

333 Celeron 32MB 3.2GB 899.75

350/P II 64 3.2GB NT 1119.80

350/P II 32MB 3.2GB 1015.99

400/P II 64MB 6.4GB 1249.05

450/P II 64MB 6.4GB NT 1578.33

PC 300GL SBS mini-towers

366 Celeron 32MB 4.2GB 10/100 MS Office 1198.67

350/P II 64MB 8.4GB 10/100 MS Office 1322.79

400/P II 64MB 8.4GB 10/100 MS Office 1918.68

400/P II 64MB 8.4GB 56K MS Office 1418.37

450/P II 64MB 12.8GB 56K MS Office 1848.93

450/P II 128MB 12.8GB 56K MS Office 1746.94

PC 300PL Series desktops

350/P II 64MB 6.4GB 32X 10/100 NT 1523.05

350/P II 32MB 6.4GB 10/100 Win 98 1369.53

400/P II 64MB 6.4GB 32X 10/100 NT 1569.62

450/P II 64MB 6.4GB 32X NT 1868.36

PC 300GL Series mini-tower

333 Celeron 32MB 3.2GB Win 98 918.57

350/P II 64MB 6.4GB 32X NT 1352.36

400/P II 64MB 6.4GB 32X NT 1373.12

HEWLETT-PACKARD

HP Brio Series mini-towers

333 Celeron 32MB 4.3GB 32X 821.34

333 Celeron 64MB 8GB 32X 978.56

350/P II 32MB 4.3GB 1047.68

400/P II 64MB 8GB 32X 1639.43

400/P II 32MB 3.2GB 1698.32

HP VE Series desktops

300 Celeron 32MB 3.2GB 748.22

300 Celeron 32MB 3.2GB 10/100 937.53

350/P II 32MB 3.2GB 32X 1521.91

400/P II 32MB 3.2GB 1298.64

HP VE Series mini-towers

300 Celeron 32MB 3.2GB 887.46

300 Celeron 32MB 3.2GB 32X 839.58

350/P II 64MB 6.4GB 32X 10/100 1451.93

400/P II 64MB 6.4GB 32X 1525.22

HP VL Series desktops

333/P II 32MB 4.3GB 1387.29

350/P II 64MB 4.3GB 10/100 1479.45

400/P II 64MB 6.4GB 32X 1788.57

450/P II 64MB 10.1GB 32X 10/100 2148.23

HP VL Series mini-towers

333 Celeron 64MB 4.3GB 32X 1434.90

350/P II 64MB 4.3GB 10/100 1488.35

400/P II 64MB 10.1GB 32X 10/100 1798.43

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ACER

300/P II 32MB 4.3GB 795.95

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266/P II 32MB 4GB 24X 1129.43

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Satellite and Satellite Pro notebooks

4010CDS 266/P II 32MB 1348.58

4.1GB 12.1" DS 24X 1798.88

4.1GB 12.1" AM 24X 1798.88

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6.4GB 13.3" AM 24X 2338.48

Tecra notebooks

8000CT 233/P II 64MB 4GB 12.1" AM 24X 2398.94

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8000CT 300/P II 64MB 6.4GB 13.3" AM 24X 3347.56

8000CT 300/P II 64MB 6.4GB 14.1" AM 3817.23

Portege notebooks

3010CT 266MMX 32MB 4.3GB 10.4" AM 1697.87

7000CT 266/P II 32MB 4.3GB 12.1" AM NT 2648.98

7000CT 266/P II 32MB 4.3GB 12.1" AM 2559.89

7010CT 300/P II 32MB 4GB 12.1" AM 3098.98

7010CT 300/P II 32MB 4.3GB 12.1" AM NT 3169.99

ACER

Extensa notebooks

501DX 266MMX 32MB 3GB 12.1" DS 1237.17

502DX 266MMX 32MB 4.1GB 12.1" DS 20X 1328.48

502T 266MMX 32MB 4.1GB 12.1" AM 20X 1498.38

710DX 233/P II 32MB 2.1GB 12.1" DS 1528.06

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710TE 233/P II 32MB 4.1GB 13.3" AM 2088.58

711TE 266/P II 32MB 4.1GB 13.3" AM 24X 2378.68

712TE 300/P II 64MB 6GB 13.3" AM 2838.32

COMPAQ

Prosignia 100 notebooks

233/P II 32MB 3.2GB 12.1" AM 24X 1896.56

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1700 233/P II 32MB 4GB 12.1" AM NT 2098.58

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1700 266/P II 32MB 4GB 12.1" AM NT 2867.59

1700 300/P II 32MB 5GB 14.1" AM W95 3198.93

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3500 300/P II 64MB 6.4GB 13.3" AM NT 3697.12

6500 300/P II 64MB 6.4GB 14.1" AM 24X 4087.35

6500 300/P II 64MB 6.4GB 14.1" AM 24X WNT 4167.28

7400 300/P II 64MB 6.4GB 13.3" AM 24X 4067.97

7800 266/P II 64MB 5GB 13.3" AM 20X 3497.44

7800 266/P II 64MB 5GB 13.3" AM NT 3697.12

7800 266/P II 64MB 5GB 13.3" AM 33.6K 3697.12

7800 266/P II 64MB 8GB 14.1" AM 20X 3997.56

7800 266/P II 64MB 8GB 14.1" AM NT 4267.23

7800 300/P II 64MB 8GB 14.1" AM 33.6K 4267.23

7800 266/P II 64MB 8GB 14.1" AM DVD 4657.31

7800 266/P II 64MB 8GB 14.1" AM NT 4857.96

7800 266/P II 64MB 8GB 14.1" AM 33.6K 4857.96

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4150 300/P II 64MB 6.4GB 14.1" AM NT 4097.87

OmniBook 7150 300/P II 64MB 8.1GB 14.1" AM 4797.67

IBM

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380Z 233/P II 32MB 4GB 13.3" AM 24X 1728.38

380Z 300/P II 32MB 4GB 13.3" AM 24X 1897.37

380Z 300/P II 32MB 4GB 13.3" AM 24X NT 1996.56

380Z 233/P II 32MB 4GB 13.3" AM 24X NT 1848.58

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- 1-year limited parts and labor
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E335 233/P II 32MB 3.2GB 13.3" AM W95 1896.44

E335 233/P II 32MB 3.2GB 13.3" AM NT 2085.54

E340 266/P II 32MB 4GB 13.3" AM W95 2268.98

E340 266/P II 32MB 4GB 13.3" AM W98 2268.98

E340 266/P II 32MB 4GB 13.3" AM NT 2458.68

E350 300/P II 32MB 5GB 13.3" AM W95 2549.76

E350 300/P II 32MB 5GB 13.3" AM W98 2549.76

E350 300/P II 32MB 5GB 13.3" AM NT 2738.88

L440 266/P II 32MB 4GB 13.3" AM 95 2558.63

L440 266/P II 32MB 4GB 13.3" AM 98 2558.63

L440 266/P II 32MB 4GB 13.3" AM NT 2849.21

L440 266/P II 32MB 4GB 20X 13.3" AM 95 2749.68

L440 266/P II 32MB 4GB 20X 13.3" AM 98 2749.68

L440 266/P II 32MB 4GB 20X 13.3" AM NT 2928.33

VB Pro 7630 233/P II 32MB 3.2GB 12.1" AM 24X 2199.00

4GB 13.3" AM 24X NT 2799.00

VB Pro 7775 300/P II 64MB 6.4GB 13.3" AM 24X 2999.00

VB 600 266/MMX 32MB 3.2GB 10.4" AM 1999.00

VB 600 300/P II 64MB 6.4GB 14.1" AM 3199.00

HITACHI

15CTA 300/K6 32MB 3.1GB 12.1" AM 1448.32

15CTA333 333/K6 32MB 3.1GB 12.1" AM 1448.32

1000CT 266/P II 32MB 4GB 24X 12.1" AM 1948.52

1000CX 266/P II 32MB 4GB 24X 13.3" AM 2048.68

1010CT 300/P II 64MB 4GB DVD 12.1" AM 2369.69

1010CX 300/P II 64MB 4GB DVD 13.3" AM 2548.38

1010CXNT 300/P II 64MB 4GB DVD 13.3" 2679.59

3500CXNT 300/P II 64MB 6.4GB 13.3" AM 2996.37

3500CXNT 300/P II 64MB 6.4GB 14.1" 2797.46

3500LCXNT 300/P II 64MB 6.4GB 15.1" 3246.86

AM = active-matrix display; DS = dual-scan display

AMS TECH

15CTA 300/K6 32MB 3.1GB 12.1" AM 1448.32

15CTA333 333/K6 32MB 3.1GB 12.1" AM 1448.32

1000CT 266/P II 32MB 4GB 24X 12.1" AM 1948.52

1000CX 266/P II 32MB 4GB 24X 13.3" AM 2048.68

1010CT 300/P II 64MB 4GB DVD 12.1" AM 2369.69

1010CX 300/P II 64MB 4GB DVD 13.3" AM 2548.38

1010CXNT 300/P II 64MB 4GB DVD 13.3" 2679.59

3500CXNT 300/P II 64MB 6.4GB 13.3" AM 2996.37

3500CXNT 300/P II 64MB 6.4GB 14.1" 2797.46

3500LCXNT 300/P II 64MB 6.4GB 15.1" 3246.86

AM = active-matrix display; DS = dual-scan display

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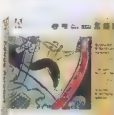


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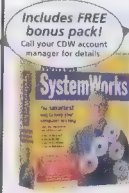


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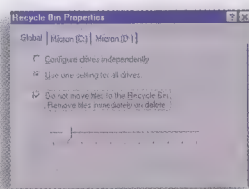
Help

Snoop-Proof Your PC

Your PC is ready and willing to reveal what you've been up to. Give nosy types a few hours to dig around, and they can unearth plenty: incoming and outgoing mail you've deleted, Internet sites you've visited, search criteria and data you've entered on Web forms, even phrases you've included in a document—then thought better of and deleted. Fortunately, you can protect yourself if you know these insider tricks. Here's how to keep your PC under wraps.

1. Delete Files Once and For All

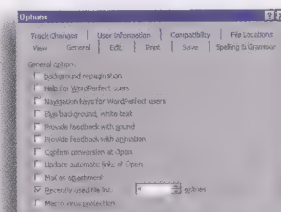
First, get rid of files you think you've already nixed from your system. We're talking about all the trash you banish to your Recycle Bin. Sure, you can empty it out whenever you remember (double-click on its icon, then choose File, Empty Recycle Bin), but a better way is to turn off the Recycle Bin. To truly delete your files the first time around, right-click on the Recycle Bin and choose Properties, then Global. Check the box called "Do not move files to the Recycle Bin. Remove files immediately on delete."



Step 1 Stop files from lurking in the Recycle Bin when you delete them. Set the Properties dialog box to delete them immediately.

2. Nix Traces of Deleted Files Even if snoops can't view your documents directly, they can get an idea of what you've been doing by scanning your list of recently used files in

Microsoft Word or Excel's File menu. This temporary menu lists even files you've recently deleted, so it's best to turn off the option. In Word or Excel, select Tools, Options, then General. Uncheck the box labeled Recently Used File List.



Step 2 Remove all traces of recently deleted files by clearing the File menu in Word, Excel, and other apps you use regularly.

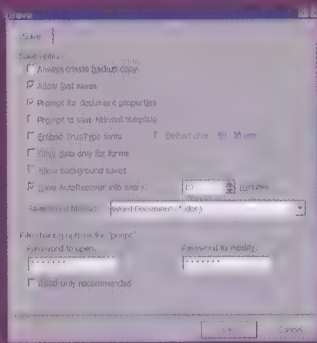
3. Hide Documents

Next cover the tracks of your current documents. Pop up the Start menu and select Documents. It shows a list of the last 15 or so files you had open—making it too easy for someone to browse through your work or personal files without even searching your hard drive. To hide your work, clear the menu by clicking on the Start menu's Settings folder, then selecting Taskbar. Choose the Start Menu Programs tab, then click on the Clear button at the bottom of the tab.

4. Clean Out Temp Files

Microsoft Word and other apps usually save temporary copies of your work in progress to guard against system crashes. Many apps also save text you've deleted, moved, or copied—even if you haven't saved the file you're working on. Get rid of those

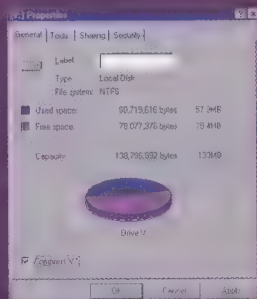
Inside Help



Compress an NTFS Disk

NT 4.0 brings faster and easier compression on NTFS drives. Here's how. **214**

Keep Your PC Private
Protect your computer even from super snoops. Here's how to be ultrasafe. **212**



How It Works

Color laser printers are fast and give gorgeous output. Here's why. **216**

Boost Your Battery Life

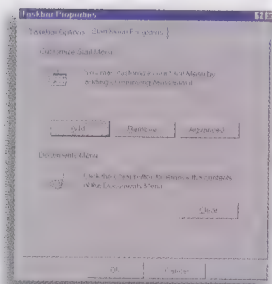
Get more juice from your notebook when you're away from that power outlet lifeline. **218**



REGISTRY HACKS EXTEND YOUR NET REACH

Sick of getting Site Not Found messages? Your browser has to work to find its destination. Often it gives up and wrongly says a site is unavailable. Here's how to increase your computer's Net reach.

- Step 1** Before you do anything, back up the Registry. Be aware that making any changes to the Registry can wreak havoc on your system. For backup instructions, go to www.pccomputing.com/getnow.
- Step 2** Bring up Regedit by clicking on the Start button. Choose Run, type REGEDIT, and hit Enter.
- Step 3** Navigate to HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES\VXD\MSTCP. Choose Edit, New, String Value, and call the new value DefaultTTL. Right-click on the new key, choose Modify, and enter a value of 64, doubling the previous number.
- Step 4** Exit Regedit. Restart your computer to make this setting take effect.



Step 3 Hide files by clearing the Documents Menu on the Windows Start menu.

snippets by routinely deleting the temporary files that each app saves in the \WINDOWS\TEMP folder. Also make sure to delete all the files within its subdirectories, such as those labeled VFX and WORDXX. Many of the files have extensions such as TMP, but they are actually complete versions of DOC, HTML, or even image files.

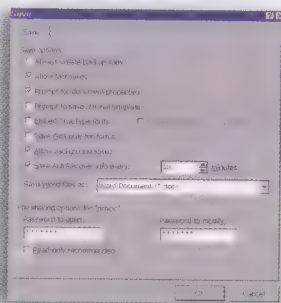
5. Lock Important Files

Also password-protect critical files. It's easy in Word and Excel. Choose File, Save As, then select Options. In the password box, type in a password; the best passwords aren't real words or dates. Use a combination of letters, numbers, and punctuation for a password that's hard to guess. You'll have to type in your password each time you open and save the document.

6. Rewrite Web History

Your browser is the next area to safeguard. Both Internet Explorer and Netscape Navigator keep

lists of all the places you've been, including the specific pages you've visited, searches you've done, and data you've entered. To view your Web history in Navigator, press Ctrl-H; in Explorer, choose View, Explorer Bar, History. To delete Navigator's history items, highlight the desired items and press the Del



Step 5 Password-protect sensitive files to keep prying eyes away.

key, or delete them all at once by choosing Select All on the Edit menu, then press the Del key. Internet Explorer stores your Web history in weekly folders or by Web site. You can delete individual URLs, but the quickest way is to delete entire folders. To clear out your whole history, select Internet Options from the Edit menu, choose the General

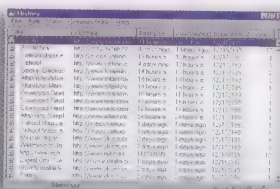
Tab, and click on the Clear History button.

7. Enter Web Sites Without Being Followed

Navigator and Internet Explorer keep a record of every Web address you type into your browser. Take a look: Enter a URL in the location window below the toolbar; the browsers record the URL in their drop-down menus until other entries replace it. Here's a way to visit a site undetected: In either browser, press Ctrl-O to bring up a dialog box, then type the URL into it.

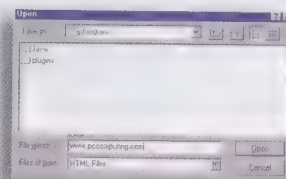
8. Clean Out Your Cache

Both Explorer and Navigator keep caches of recently visited Web pages on your hard drive. This speeds up Web access when you revisit the pages, but it also leaves you open to snoops. To clear your cache in Navigator, choose



Step 6 Clean up after your Web surfing by clearing out your browser's History list.

Preferences from the Edit menu, click on the + sign next to the Advanced selection, then click on Cache. Now click on the button labeled Clear Disk Cache. In Explorer, select Internet Options from the View menu and click on the



Step 7 Quickly open up a Web site by pressing Ctrl-O, then typing in the address.

General tab. Click on the button labeled Delete Files. You can also set your browser so it doesn't use a cache at all—yes, this slows surfing. In Navigator, select Edit, Preferences, Advanced. Click on Cache and set the Disk Cache box to 0. In Internet Explorer, select View, General, and Settings. Then move the slider all the way to the left.

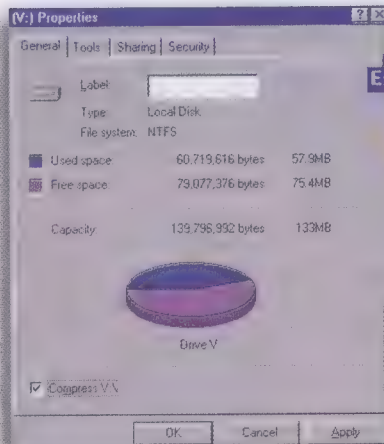
Michael Banks, a freelance author specializing in privacy, is the author of *The Big Book of PC & Internet Security*. Edited by **Liesl La Grange Noble**.

By Ed Bott

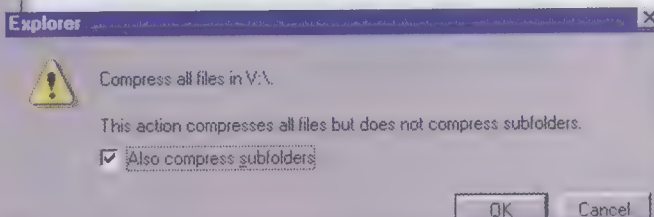
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Compress an NTFS Disk

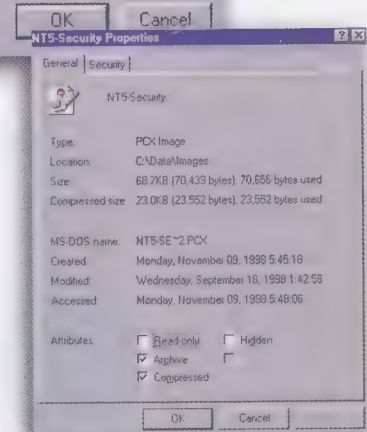
If you've been scared away from disk compression by the clunky DOS and Windows versions of DriveSpace, look again after you upgrade to NT 4.0. On NTFS drives, compression is effortless, fast, and extremely configurable. Compress a single file, a folder, or even an entire drive; the compression/uncompression activity happens in the background when you create, open, or save files. In folders filled with graphics or database files, the disk space savings is impressive.



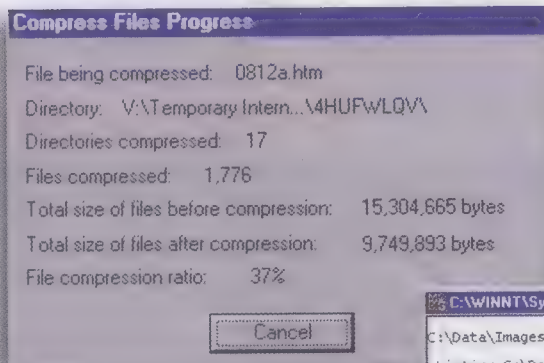
Step 1 Open an Explorer window, right-click on the icon for a drive (as shown here), a folder, or a file, and check the **Compress** box.



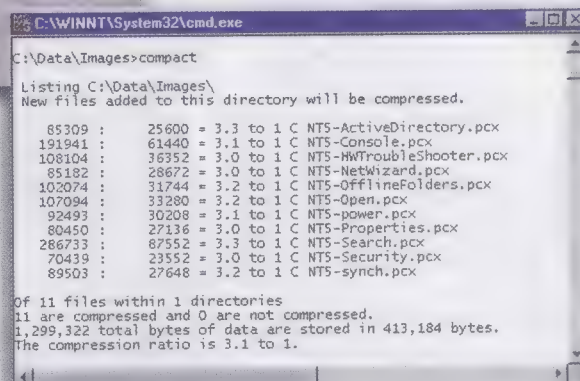
Step 2 If you selected a folder or a drive, specify whether you want to compress subfolders as well. This option is not available on FAT volumes.



Step 3 When you click on **OK**, NT begins compressing. Watch the progress dialog box to see how much space you're saving.



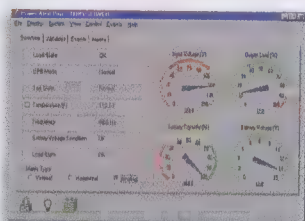
Step 4 Compressed files show as blue in Explorer; right-click on each file and choose **Properties** to see full before-and-after details.



Step 5 To see compression information on a group of files, open a command prompt window and use the **COMPACT** command. Used without switches, it displays statistics; to see syntax details, use the **/?** Switch.

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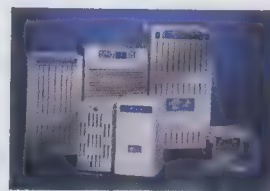
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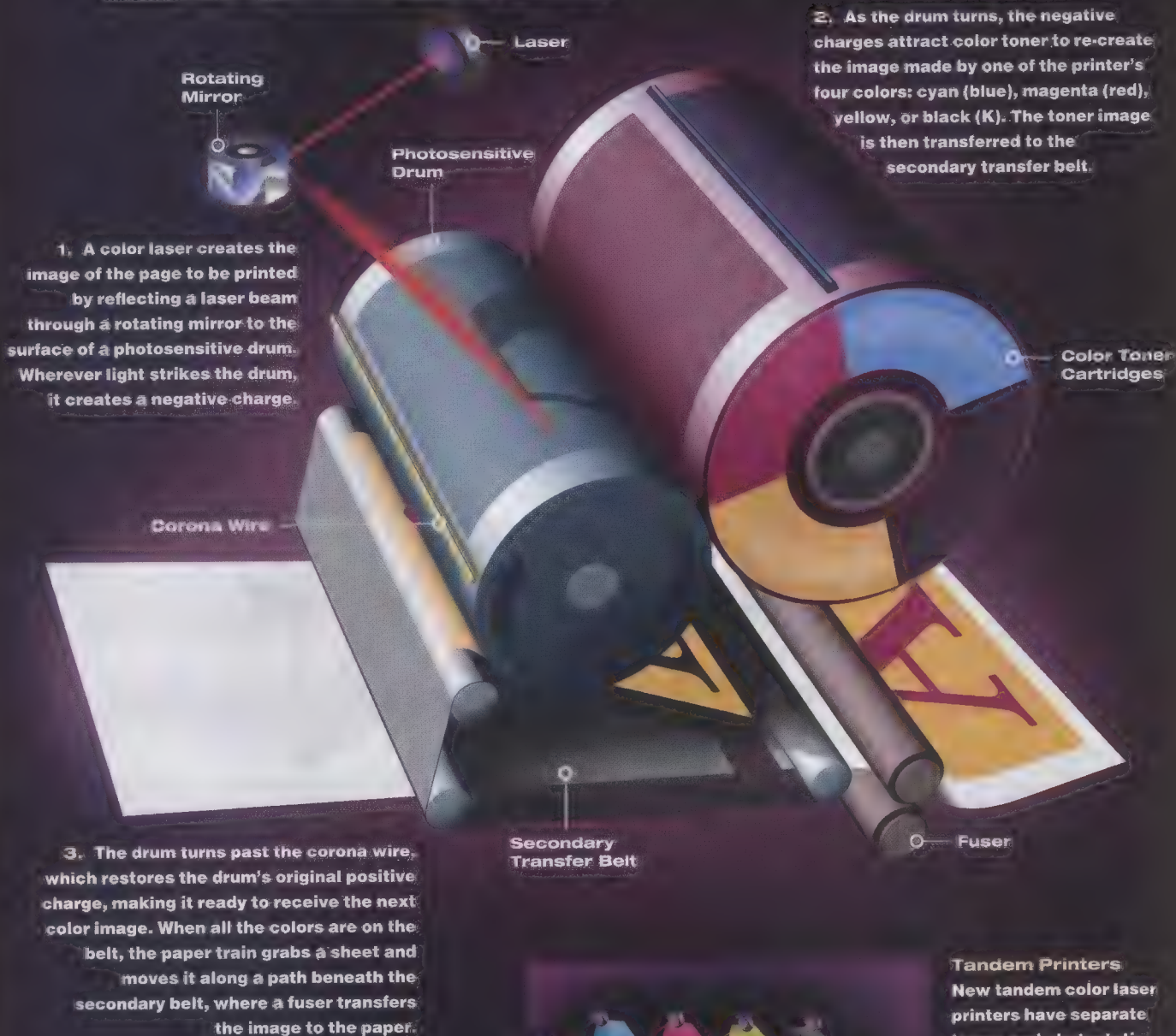
Color Laser Printer

Drooling over color laser prints? Wish you could have a color laser at your office but think they're just too pricey or slow? You'd be surprised at how affordable they are, and the performance is getting better too. Here's how a laser printer combines four colors into one beautiful printed page.

By Ron White

Illustration by Timothy Edward Downs

Ron White is the author of *How Computers Work*, Fourth Edition, published by Que (ISBN 078970728X). Illustrations by Timothy Edward Downs.



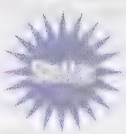
Tandem Printers

New tandem color laser printers have separate lasers and photostatic drums for each color, speeding up the time it takes to produce a page. The colors are transferred to the secondary belt in one turn instead of the four required by single-drum color laser printers.

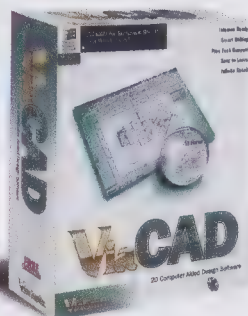
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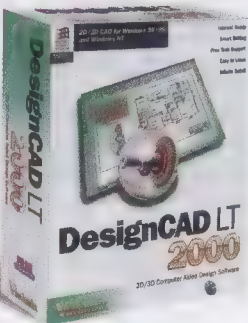


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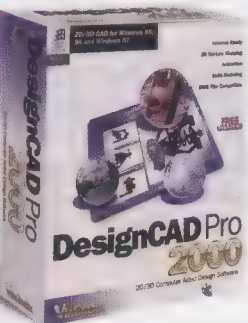
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How would you like to squeeze 30 to 40 minutes of extra battery life out of your portable PC just by changing some Windows settings? Some of your favorite apps may be siphoning battery power. Extending a notebook's battery life is easy—if you know the secrets. Learn how to find battery-burning culprits. Plus: more tricks of the pros.

98 The best Windows for travelers is Windows 98, which has the latest power-management options for notebooks. It reduces the drain of power-hogging components until they're really needed. Don't choose Windows NT 4 Workstation, which has limited power-saving options.

Power Scheming

To get to Windows 98's power-management features, click on Start Menu, Settings, Control Panel, then click on the icon labeled Power Management. Make sure you select the Portable/Laptop scheme. Many notebooks come standard with the power-hungry Home/Office Desk or Always On schemes selected.

Custom Power Management

how long to wait after you've stopped working before shutting down greedy apps. Use the Portable/Laptop settings as a start, then customize them depending on how you work. Some people work continuously and then stop for a long time. If that's you, set short suspend times. Other people pause a lot while they work, which makes short suspend times annoying, as the machine shuts down just as they want to type again. If your notebook shuts down too often, try changing the System Standby setting from 5 minutes to 10 minutes and the Turn Off Monitor from 2 minutes to 5 minutes. Save your personal power scheme by clicking on the Save As button and giving it a name.

Deliberately Drain Your Battery

Periodically drain your batteries to make sure you're

getting full charge life. To do this, leave the computer running until it dies. Here's how: In the Power Management dialog box, make a special power scheme called Battery Drain that has all three Running on Batteries options set to Never so the notebook stays on. Choose that scheme, then click on the Alarms tab and uncheck both the Low Battery and Critical Battery alarms (this stops the computer from suspending when the battery gets low). Then leave the computer running on a CPU-intensive task, like a complex screen saver.

Train Your Battery

If the notebook battery is new, a little conditioning will give you the most from



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it. Don't start using the battery until it's been fully charged and discharged three times. Do the same thing if the battery has been sitting idle for a few months. This charge-discharge cycle helps ensure that the battery chemicals are fully activated before regular use. Make a habit of fully discharging the battery at least once a month before recharging.

Watch the Clock

Not sure how much battery life you have? You can get an idea by clicking on the battery icon on the Windows Taskbar, but it tells you only the percentage of battery power left. Power Center or Bgauge (both available free from www.pccomputing.com/getnow) are handy little utilities for Windows 95 and 98 that track your battery life and the way you work. They can better gauge the actual time left on your current battery charge.

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Notebook Power Tips

How would you like to squeeze 30 to 40 minutes of extra battery life out of your portable PC just by changing some Windows settings? Some of your favorite apps may be siphoning battery power. Extending a notebook's battery life is easy—if you know the secrets. Learn how to find battery-burning culprits. Plus: more tricks of the pros.

Switch to Windows 98

The best Windows for travelers is Windows 98, which has the latest power-management options for notebooks. It reduces the drain of power-hogging components until they're really needed. Don't choose Windows NT 4 Workstation, which has limited power-saving options.

Power Scheming

To get to Windows 98's power-management features, click on Start Menu, Settings, Control Panel, then click on the icon labeled Power Management. Make sure you select the Portable/Laptop scheme. Many notebooks come standard with the power-hungry Home Office Desk or Always schemes selected.

Custom Power Management

Power settings tell the comp

how long to wait after you've stopped working before shutting down greedy apps. Use the Portable/Laptop settings as a start, then customize them depending on how you work. Some people work continuously and then stop for a long time. If that's you, set short suspend times. Other people pause a lot while they work, which makes short suspend times annoying, as the machine shuts down just as they want to type again. If your notebook shuts down too often, try changing the System Standby setting from 5 minutes to 10 minutes and the Turn Off Monitor from 2 minutes to 5 minutes. Save your personal power scheme

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By Woody Leonhard

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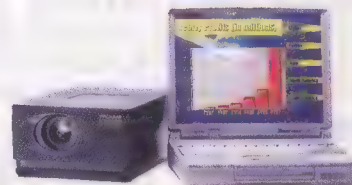
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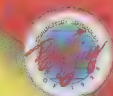
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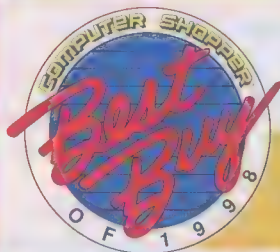
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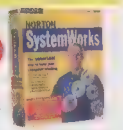
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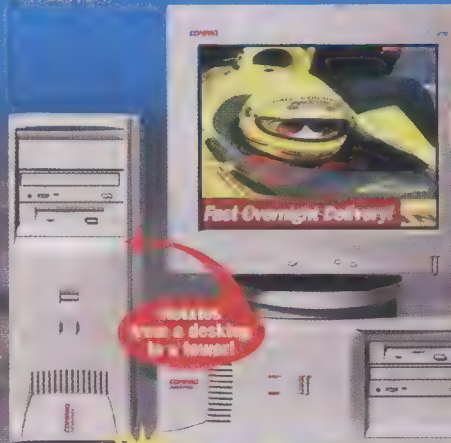
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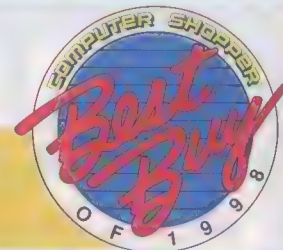
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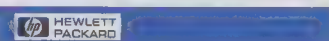
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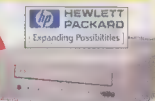
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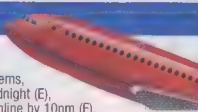
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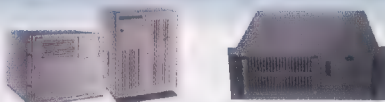
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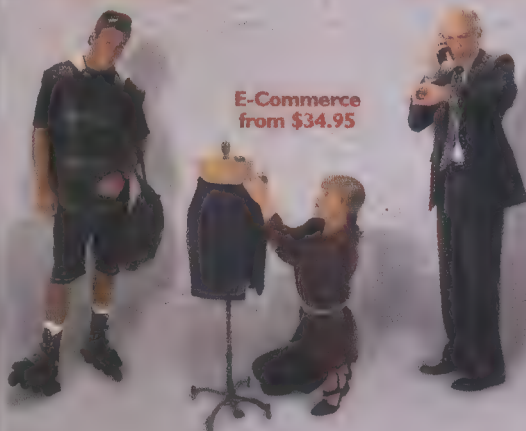
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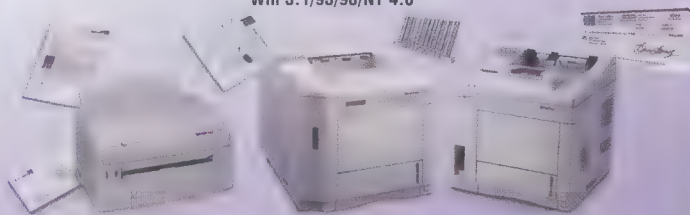
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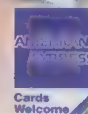
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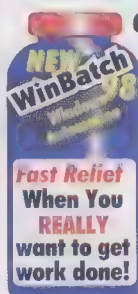
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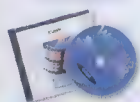
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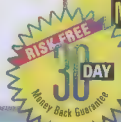
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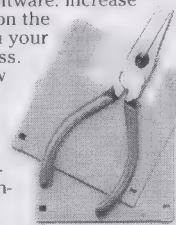
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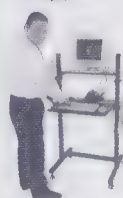
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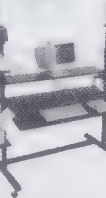
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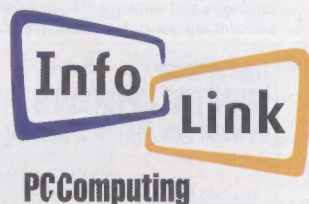
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Intel Pentium II	350MHz	64MB	6.4GB	\$1079.99	(CTLTM11)
AMD K6-2	400MHz	128MB	10.2GB	\$1129.99	(CTLTM37)
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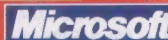
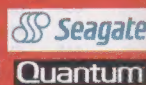
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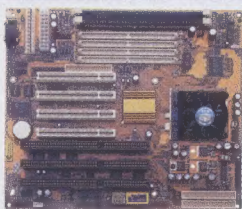
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Tiger 571 Motherboard Features At-A-Glance

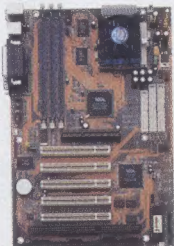
Form Factor: Baby AT On Board Video: 4MB ISA Slots: 3
Processor: Socket 7 On Board Audio: YES Memory: DIMM or SIMM
Bus Speed: Up to 83MHz PCI Slots: 4 Max Memory: 384 MB



Tiger S7-MVP3 ATX Super Socket 7

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Tiger 6KE LX Motherboard Features At-A-Glance

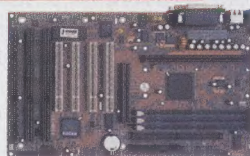
Form Factor: ATX • CPU: Socket 7 • Bus Speed: Up to 100 MHz • AGP Slots: 1
• PCI Slots: 5 • ISA Slots: 2 • Memory: 3 DIMM Sockets • Max Memory: 384 MB

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• ISA Slots: 3 • Memory: 3 DIMM Sockets • Max Memory: 384 MB

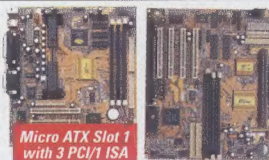
Tiger 6BE+ BX Motherboard Features At-A-Glance

Form Factor: ATX • CPU: Slot 1 • Bus Speed: Up to 100MHz • PCI Slots: 4
• ISA Slots: 3 • Memory: 3 DIMM Sockets • Max Memory: 768 MB

Tiger 767 AT, 760 ATX Slot 1

Motherboard & Case: Motherboard mounted in dual-cooling fan case; cables & manual

Pre-Assembled Kits: Motherboard in dual-cooling fan case; keyboard, speakers, mouse, 3D AGP video, 56KFlex faxmodem, 1.44MB floppy drive, 24X CD-ROM, Wave Table sound.



Micro ATX Slot 1 with 3 PCI/1 ISA

AT Slot 1 with 4 PCI/1 ISA

Tiger 767 Form Factor: AT • CPU: Slot 1 • Bus Speed: Up to 100 MHz • On Board Video: 8MB AGP • On Board Audio: YES • PCI Slots: 4 • ISA Slots: 1 • Memory: DIMM • Max Memory: 768 MB

Tiger 760 Form Factor: Micro ATX • CPU: Slot 1 • Bus Speed: Up to 100MHz • On Board Video: 8MB AGP • On Board Audio: YES • PCI Slots: 3 • ISA Slots: 1 • Memory: DIMM • Max Memory: 768 MB

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Tiger S7-MVP3 ATX Super Socket 7 1MB cache	All AMD Up to K62-4006; Intel Pentium up to 233 MMX IBM/Cyrix up to MII 350	MB1-C-2B	\$57.99 \$49.99	BB1-C-2B	\$139.99 \$128.99	KT1-C-2B	\$269.99 \$248.99
Tiger 767 AT Slot 1 with Sound & AGP video	Celeron up to 333MHz Intel Pentium II up to 500MHz	MB1-E-5A	\$99.99 \$91.99	BB1-E-5A	\$154.99 \$142.99	KT1-E-5A	\$249.99 \$229.99
Tiger 760 Micro-ATX Slot 1 w/Sound & AGP video	Celeron up to 333MHz Intel Pentium II up to 500MHz	MB1-E-6A	\$99.99 \$91.99	BB1-E-6A	\$139.99 \$128.99	KT1-E-6A	\$239.99 \$220.99
Tiger 6KE LX ATX Slot 1	Celeron up to 333MHz Intel Pentium II up to 333MHz	MB1-T-10A	\$49.99 \$39.99	BB1-T-10A	\$114.99 \$99.99	Not Available	
Tiger 6BE+ BX ATX Slot 1	Celeron up to 500MHz Intel Pentium II up to 500MHz	MB1-T-9A	\$89.99 \$79.99	BB1-T-9A	\$149.99 \$134.99	Not Available	

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#CP2-K62-305 300 3DNow! 50-pack	\$3,750.99	(\$75 ea)
#CP2-K62-333 333 3DNow!	\$101.99	\$96.99**
#CP2-K62-350 350 3DNow!	\$116.99	\$111.99*
#CP2-K62-380 380 3DNow!	\$151.99	\$144.99*
#CP2-K62-400 400 3DNow!	\$187.99	\$178.99*



IBM/Cyrix MII

Tiger recommends the AT motherboard or the Tiger Super Socket 7 motherboard with these processors.

IBM/Cyrix MII

	1-2 Units	3 units or more
#CP2-6X300 MII 300 CPU	\$50.99	\$47.99
#CP2-6X305 MII 300 50-pack	\$2,350.99	(\$47 ea.)
#CP2-6X333 MII 333 CPU	\$57.99	\$54.99*
#CP2-6X300 MII 350 CPU	\$92.99	\$87.99*



1.44MB 3.5" Drives



Item #	Description	1-2 Units	3 Units
S190-1000	3.5" 1.44MB Floppy Drive	\$18.99	\$15.49

Cooling Fan SALE!



Item #	Description	1-2 Units	3 Units
C183-1000	Socket 7 Cooling Fan	\$4.99	\$3.99

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Intel Celeron & Pentium II MMX



Intel Celeron & Pentium II Processors

	1-2 Units	3 units or more
#CP1-C1300 Intel Celeron 300 (no cache) processor	\$49.99	\$47.99
#CP1-C1300A Intel Celeron 300A (128K cache) processor w/fan	\$77.99	\$72.99
#CP1-C1333 Intel Celeron 333 (128K cache) processor w/fan	\$102.99	\$97.99
#CP1-P2-350 Intel Pentium II 350 processor w/fan*	\$247.99	\$240.99
#CP1-P2-400 Intel Pentium II 400 processor w/fan*	\$417.99	\$396.99
#CP1-P2-450 Intel Pentium II 450 processor w/fan*	\$642.99	\$610.99

Sorry, but as prices are always changing on CPUs and memory, we do not offer price protection in the event prices rise or fall. *Requires 100MHz bus motherboard and 8ns PC100 SDRAM Memory. ** Requires 95MHz bus motherboard and 8ns PC100 SDRAM. † Requires 83MHz bus motherboard. Call us for details and warranty information. No returns accepted on CPUs.

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By Leslie Ayers

Enter next month's I-Poll at
www.pccomputing.com

Caught up in auction fever? Thirty-seven percent of you buy goods at Web auctions. Much fewer—12 percent—sell merchandise that way. That's about to change. After Internet auction site eBay went public in September, its stock shot up—increasing value fivefold in record time. And while the suits on Wall Street predict that eBay's fantastic market run isn't permanent, that's not stopping its million-plus users from buying and selling like mad every day.

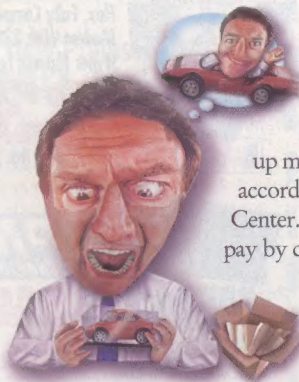
What do you buy or sell? It started with Pez dispensers.

Now eBay sells everything from antique cars to Beanie Babies, which account for almost 5 percent of all auctions on the site. Most of you bid on PC-related stuff—peripherals and software—as well as home electronics. PCs and collectibles tied for less than 10 percent of your buying dollars. On the other hand, those who hawk goods at Web auctions mostly sell collectibles and computer peripherals. While over half of you buy new merchandise, 37 percent trade in both new and used goods. Why not, when you can buy an almost-new Russian spaceship for \$99,000 or a mummified Egyptian finger for \$99?



Ever fallen for a Web auction scam?

An unlucky 14 percent of you have been cheated—and half of you never saw retribution. Granted, 59 percent chalked up the problem to false advertising. A smaller group (22 percent) never received what you bought at all. Remember when you used to hoard cereal-box tops to send away for the Super Sleuth Spy Camera that never arrived, not even after you allowed six to eight weeks for delivery? Auction swindles make up more than half of all e-commerce fraud according to the National Fraud Information Center. Our advice? Always pay by credit card, get a physical address from the seller, and only buy from sites that require registration.



What would persuade you to log a bid at a Web auction?

One-third of you want a bulletproof pledge that you'll get what you pay for—and adding the promise of a full refund would sweeten the deal for another one-third. A smaller group (14 percent) wants a low-price guarantee. And some of you (15 percent) said nothing could lure you to an online auction. Luckily for eBay, Onsale, and uBid, there are enough people who don't need persuading to keep the bidding brisk.



37%

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